Wellbarrier Integrity Management

Understand and mitigate any well integrity risks throughout the well life cycle

Wellbarrier Planning

Applications
- Data consolidated and enriched throughout the life cycle of the well
- Well Barrier Schematics prepared in minutes rather than hours and ensure stakeholders have a clear and common understanding of the barriers safeguarding the operation
- Objectively, systematically, and proactively manage risk and remedial action planning
- Qualifying and monitoring well barrier performance to ensure consistent understanding among multidisciplinary teams
- Consolidate and analyze data to proactively manage risk and optimize well integrity performance.

How it works
To ensure that all stakeholders have a clear and common understanding of risk throughout the well life cycle, the Wellbarrier well integrity life cycle solution is founded on the well barrier definition and comprises the elements and envelopes that contain hydrocarbons and pressure in the well. A consistent and structured approach to well integrity is ensured by following the robust, integrated methodology of the well integrity value chain, which spans the sequence of data collection, barrier definition, element verification, risk assessment, monitoring, and reporting.

The Wellbarrier solution consists of the following:
- **Wellbarrier Planning** supports decision making during planning operations and safeguards the execution of well activities.
- **Wellbarrier Integrity Management** provides a structured framework to proactively manage well integrity.

How to improve well integrity
Wellbarrier Integrity Management is a product of the digital wellbarrier solution that provides an overview of well data from the construction phase through the operating phase, including the status of the elements safeguarding the well. The data are displayed on intuitive dashboards and reported to stakeholders to support collaborative decision making.

Wellbarrier Integrity Management

The Wellbarrier well integrity life cycle solution provides operators with a comprehensive, data-based life cycle perspective through its Wellbarrier Planning and Wellbarrier Integrity Management products.

- A digital framework for managing well integrity throughout the well life cycle
- Using the barrier definition to objectively determine risk
- Aligned with industry standards and best practices
- Single data repository and intuitive interface enable proactive collaboration.
Wellbarrier Integrity Management

Both Wellbarrier Planning and Wellbarrier Integrity Management share the following five Wellbarrier solution features.

### Well Data Integration
Defines the hole and casing configuration, completion components, reservoir sections, blowout preventer (BOP) configuration, and other well status information. Domain specialists can share, track, and augment data in real time. Built-in quality assurance continuously improves the data's richness and accuracy.

<table>
<thead>
<tr>
<th>SECTION TYPE</th>
<th>HOLE</th>
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<td></td>
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<td>9.625</td>
</tr>
<tr>
<td>Production liner</td>
<td>8.500</td>
<td>5.500</td>
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### Illustrations
Quickly generates illustrations using intuitive drag-and-drop functionality to represent the well at any stage of its life cycle, enabling the creation of consistent and accurate illustrations in minutes.

### Well Barrier Schematic
Conveys how the well activity should be safeguarded through easy-to-read schematics and summary tables of how to qualify and monitor the defined well barrier elements. The well barrier schematic is the foundation of the solution.

### Risk Assessment
Enables performing objective failure mode effect and criticality analysis (FMECA) risk assessments for the well or specific operations. Systematic evaluation of failure modes and consequences supports understanding the risks and specifying mitigating measures to limit them.

### Well Integrity Anomalies Tracking
Provides an overview of well integrity incidents identified during the well's construction and lifetime. This feature is used to assign actions to colleagues, set deadlines, and take corrective action.
Wellbarrier Integrity Management

Wellbarrier Integrity Management provides the following modules. These are closely aligned with legislative requirements and industry best practices and help provide a robust framework to manage well integrity. The data is then displayed on intuitive dashboards and reported to stakeholders to support collaborative decision making.

Completion Diagram and MAASP

Generate well completion diagrams using well configuration data descriptions entered into the application. Accurate completion diagrams, together with detailed assembly drawings, can then be created, incorporating additional data if necessary. The completion diagram can be used as part of operation planning to maintain control over depth, ID, OD, and drift diameter. The maximum allowable annulus surface pressure (MAASP) calculator is based on the well integrity lifecycle governance calculations defined in ISO 16530-1 and used to determine the greatest pressure that the annulus can contain as measured at the wellhead and without compromising the integrity of any components in the annulus.

Qualification

Provides a comprehensive overview of the tests that were performed on the well components when they were originally installed.

Monitoring

Monitors the annulus and tubing pressure and temperature. Results can be compared against acceptance criteria to verify the component integrity. These are the principal parameters used to determine the condition of many of the well components. Previous test results are also available for comparison to enable analysis of historic trends. Documents (e.g., test charts) can be uploaded as supporting evidence.

Insights

Customizes data to display multiple views for individual wells and a high-level summary at field, country, or company level. The dashboards are closely aligned with the well integrity value chain and show well data, well barriers, well categorization, qualification, risk assessments, monitoring, and usage (the latter for administrators).

Industry recognized

The Wellbarrier user community comprises more than 5,000 registered users across 51 countries worldwide. They are using the Wellbarrier solution’s user-friendly and intuitive digital tool to efficiently and effectively prepare more than 95,000 barrier schematics to bring them unique, reliable insight to safeguarding their well integrity.