Well Access Solution

Jack-Up Subsea Drilling, Simplified

- **Dry surface drilling BOP operations:** enhanced safety, control, and uptime.
- **Reduced loading on wellheads and trees:** protecting subsea assets and extending field life.
- **Lower day rates and mobilisation costs:** major savings versus semi-submersibles.
- **Extended operational windows:** eliminates downtime waiting on weather.
- **HPHT, CO_2 and sour service qualified**: field-proven performance in challenging environments.
- **MPD Ready**: seamless integration into Managed Pressure Drilling packages.

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Unlocking Subsea Potential from Jack-Up Rigs

Over 60% of the world's subsea wells lie in water depths shallower than 130 metres - yet many operators still assume deep water vessels are required. In reality, jack-up rigs equipped with dry surface BOPs can safely and efficiently access the majority of these wells.

Looking ahead, more than half of all new subsea tree installations forecast over the next decade are expected to be in jack-up–accessible water depths (Source: Wood Mackenzie).

With over three decades of proven performance, jack-up deployed subsea drilling is a cost-effective, low-risk, and operationally flexible alternative to semi-submersibles. Aquaterra Energy's complete Well Access Solution makes this possible - providing everything from subsea riser hardware and rig integration to full engineering analysis and operational assurance.

> "over half of all existing and planned subsea tree installations are within jack-up–accessible depths."

Why Choose Jack-Ups over Semi-Submersibles?

(Source: Esgian October 2025)

Jack-up rigs deliver significant cost, safety, and uptime advantages compared to floating drilling units.

Key benefits include:

- **Cut costs dramatically:** operate at a fraction of the spread rate of semi-submersibles in shallow water.
- **Enhance reliability:** fewer weather-related interruptions and greater control through dry surface drilling BOP operations, increasing drilling uptime.
- **Protect subsea assets:** reduced loading and fatigue damage to wellheads and subsea trees, extending field life.
- **Simplify operations:** easier integration of Managed Pressure Drilling (MPD) systems, improving safety and drilling margins and reduced subsea clash potential.

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Jack-Up Subsea Drilling Well Access Solution

Your Complete Seabed to Surface Well Access Partner

Aquaterra Energy's Well Access Solution provides a **fully integrated system for subsea drilling from jack-up rigs using a dry surface BOP.** Our fully managed solution brings together hardware, specialist rig integration, and advanced analysis to ensure that every interface, load path, and operating condition is optimised for offshore operations.

System Components

At the heart of the solution is the **Subsea High-Pressure (HP) Drilling Riser System,** designed to create a structurally sound, pressure-retaining conduit between the subsea wellhead or tree and the surface drilling BOP.

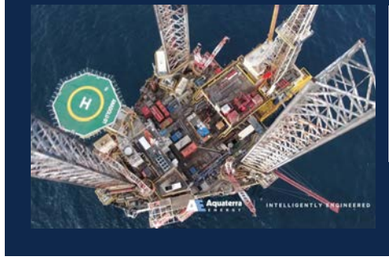
Components include:

- **Subsea connectors:** We maintain a large stock of different connector types and have a proven track record of designing, manufacturing, testing and deploying custom built solutions particularly valuable during well access abandonment operations involving obsolete or unknown interface types.
- **Stress joint:** enhances fatigue performance.
- **Intermediate and pup joints:** flexible riser configuration for varying water depths and rig elevations.
- **Tension joint:** interfaces with the rig's or Aquaterra Energy's tensioning system to maintain riser stability.
- **Surface and BOP connectors:** Aquaterra Energy offers a range of crossovers to suit various flanged and quick connector sizes and pressure ratings found on most drilling BOPs.
- **Our own proprietary AQC-BC is an API 16A connector** compatible with NT-2 connectors. Package includes running tools, test stump and BOP annular test equipment.
- **Subsea tree and wellhead handling:** engineering, tooling, rig modification and hardware.
- **Tensioning and lateral support:** engineering, tooling and hardware.
- **Auxiliary and contingency equipment:** hydraulic umbilicals, spoolers, HPUs, ROV interfaces - ensuring reliable and flexible offshore operations.

We also provide a range of rig and subsea optimisation hardware; **THRT** (tubing hanger running tool) orientation spools, specialist subsea connector crossovers, subsea fatigue and load management, top tensioning, lateral support, **subsea tree handling** decks, and **VIV** (vortex induced vibration) suppression systems.

Watch:

Semi-sub or a Jack-up rig?



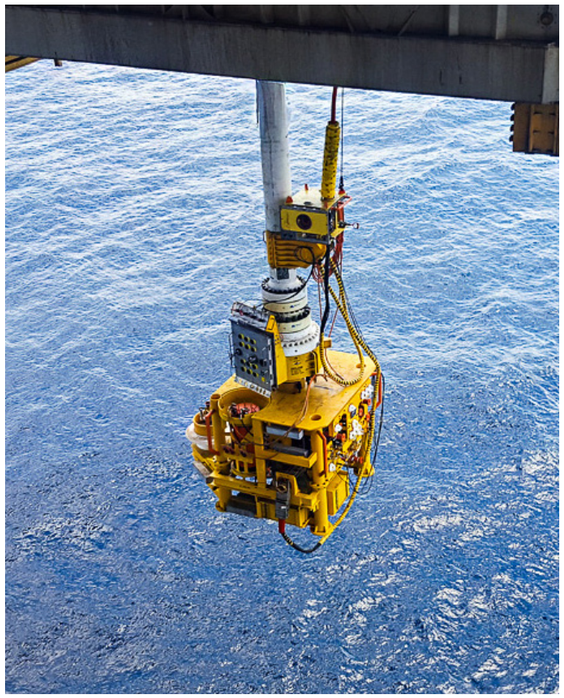
Engineering Excellence and Assurance You Can Trust

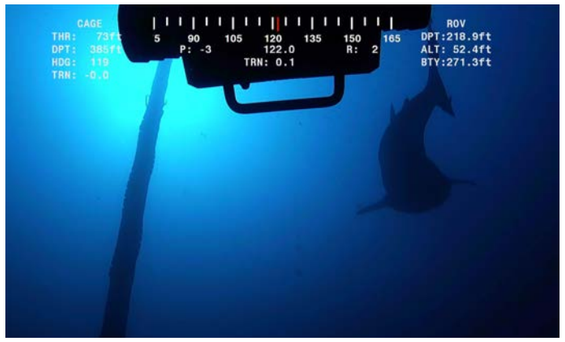
Every Well Access Solution is **underpinned by Aquaterra Energy's comprehensive engineering analysis and verification process**. Our in-house specialists use advanced modelling tools to simulate offshore conditions and assess system performance across a range of scenarios

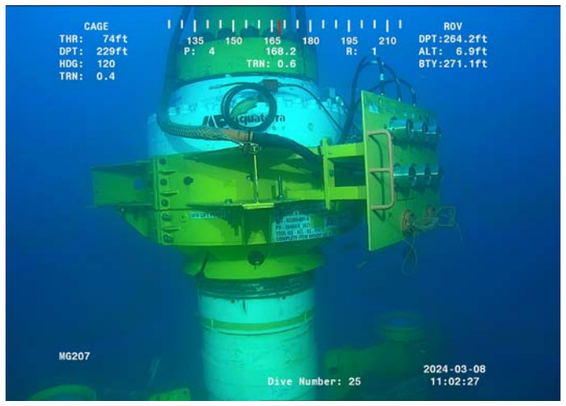
Our Engineering Analysis Includes:

- Strength, stability, and fatigue analysis.
- Tieback and re-entry analysis.
- Detailed metocean and geotechnical assessments, riser running, tensioning, and handling engineering.
- IWOCS (Intervention Workover Control System) and subsea/ surface operational compatibility.
- Well control, temperature, and NACE compliance assessments.

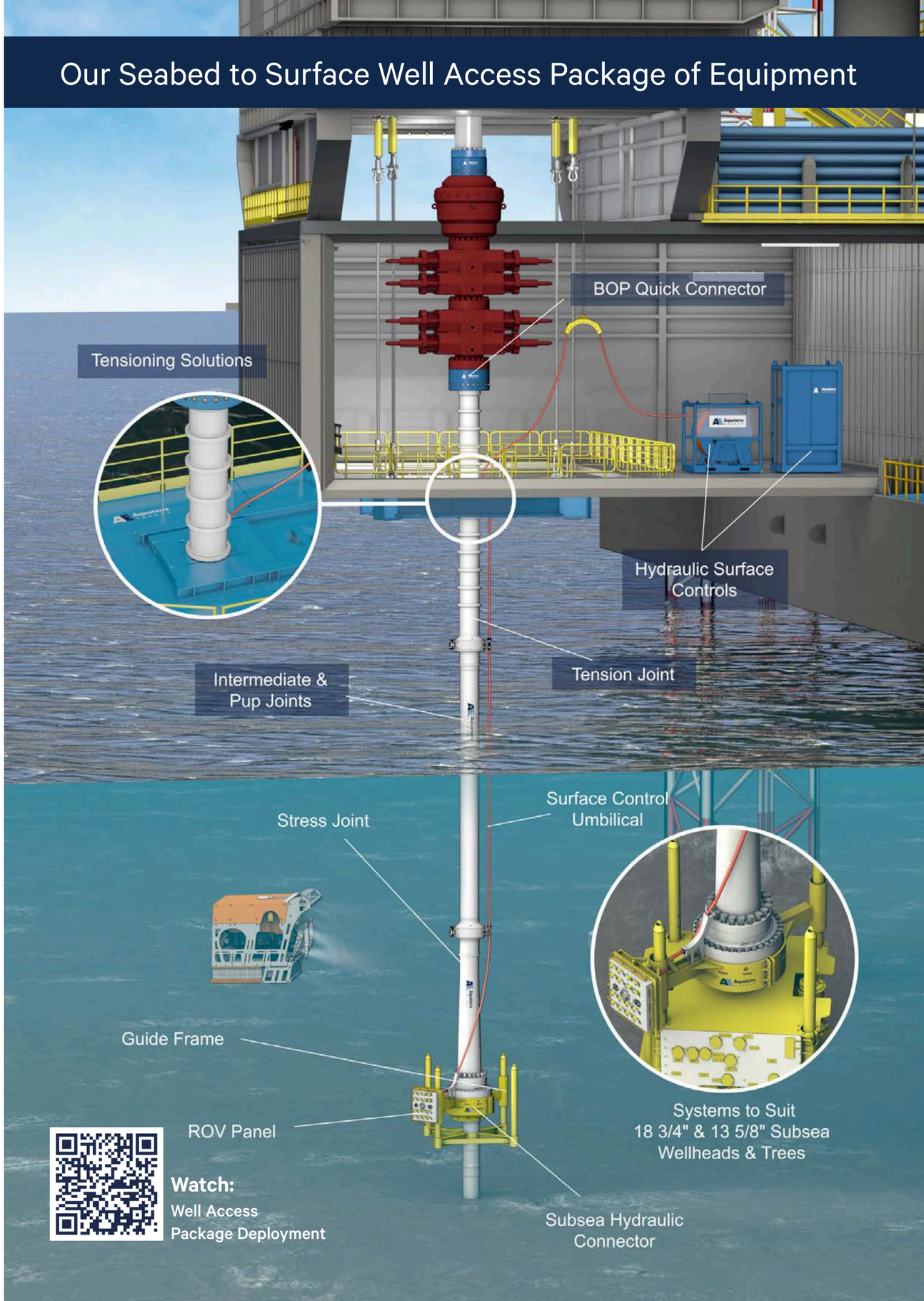
This rigorous approach ensures every Well Access Solution is fit-for-purpose, field-ready, and fully compliant with all site and operational requirements.







Our Seabed to Surface Well Access Package of Equipment



Engineered for Performance: Riser Based Well Access System Connectors

Our AQC-SR and AQC-CW Riser Connectors

At the core of our subsea drilling Well Access Solution lies our **proprietary patented AQC-SR or AQC-CW connectors** - specifically designed and qualified for high-fatigue, high-pressure subsea and surface drilling, intervention, snubbing and abandonment riser based applications.

Proven across global shallow and deep water basins, they combine exceptional fatigue performance with gas-tight, metal-to-metal sealing and repeatable performance after hundreds of makes and breaks.

The AQC-SR and AQC-CW are designed for long service life, offering a repeatable gas tight seal time after time. They are fully inspectable, measurable, and repairable, with replaceable components that simplify servicing and five-year overhauls.

AQC-SR and AQC-CW Key Features

- Designed and qualified to **ISO 13628-7 and API 16A** standards.
- **Cross-qualified** for drilling, intervention, snubbing, and abandonment operations.
- Available sizes: 4-1/2” ID to 20” ID, providing full bore access for 18-3/4” and 13-5/8” surface and subsea wellheads, trees, and large crown plug recovery (7-3/8” ID) during intervention.
- Suitable for **HPHT, CO_2, and sour service** qualified applications.
- **Gas-tight metal-to-metal seals** with elastomeric testable seal arrangement, upon make up.
- **Fast make up** with replaceable and inspectable seal ring for extended service life.
- Preloaded **static connection** designed and **qualified for dynamic loading.**
- Running shoulders enable **fast-riser spider operation** without manual bowl and slips.
- Inspectable, measurable, repairable, and replaceable components for long service life and **repeat make-and-break cycles.**
- Anti-vibration dog drive bolt lock.
- Integral low torque components eliminate dropped-object risk and improve drill floor safety.

They are more than just connectors – they deliver assurance of long-term performance, operational efficiency, and repeatable offshore success.

AQC-CW

AQC-SR

Proven Results Include:

- Single subsea well development tieback to an existing platform in Australia, extending a brownfield’s economic life.
- HPHT subsea gas well greenfield development in Azerbaijan.
- Eight subsea well water injector extension in Norway.
- Abandonment of several, 1960’s to 1970’s, subsea wells requiring legacy and custom-built subsea wellhead connectors offshore Middle East.
- Multi subsea well, greenfield development with multiple two well drill centre clusters in the UKCS.
- Single subsea appraisal well, designed for future production, offshore Ghana.
- Multi subsea well, greenfield development for CCS (carbon capture and storage) in the UKCS.
- Many more projects across global shallow-water basins.

Aquaterra ENERGY | INTELLIGENTLY ENGINEERED

Aquaterra Energy's jack-up deployed subsea drilling solution transforms what's possible for operators in shallow water. By combining proven riser hardware, robust analysis, and decades of offshore experience, we deliver a complete, field ready Well Access Solution.

By replacing costly semi-submersibles with readily available jack-ups, operators can achieve:

- **Significant cost and mobilisation savings.**
- **Reduced fatigue loading on wellheads and trees.**
- **Widen operational windows and increased uptime.**
- **Improved safety and control via dry surface BOPs.**
- **Integrate MPD systems to improve safety and drilling margins.**

A proven subsea solution that's been delivering safer, more efficient, and more sustainable offshore results for decades.

Get in touch with our team of engineering experts to discuss our Well Access Solutions for Subsea Drilling.

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www.aquaterraenergy.com

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