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Interchangeable Riserless Intervention System (IRIS)

Riserless Light Well Intervention (RLWI) Solution

Oceaneering provides cost-effective, RLWI solutions for down-hole intervention, well stimulation, well remediation, and plug and abandonment of subsea wells.

Our interchangeable riserless intervention system (IRIS) is deployable from a range of hosts including dynamically positioned multi-purpose service vessels (MPSVs) and mobile offshore drilling units (MODUs) and is fully ROV compatible.

FEATURES

Cost-effective, highly reliable riserless well intervention system

Patented, field proven technology

Global RWLI operations from vessel of opportunity

Connecting What's Needed with What's Next™

Riserless Light Well Intervention (RLWI) System Overview

Our wireline-based, riserless intervention capabilities supplement our hydraulic intervention solutions and:

- enable us to provide nimble solutions with ultimate flexibility and cost-effectiveness
- deliver improved work-over economics with systems that let the operator complete more work, some previously not viable due to costs, reliably.
- support activities including operating sleeves, setting and pulling plugs, and logging and perforating functions
- Fully functional at both high and low pressures and support life of field applications from brownfield development through decommissioning
- support intervention in areas in close proximity to production facilities or where a fatigued wellhead or tree is involved.

A fully Oceaneering managed RLWI spread includes topside fluid handling equipment, fluid conduits, slickline/wireline units, and a subsea well control package. The systems can be used to perform the following typical down-hole well interventions on horizontal and vertical trees:

- Well stimulation and remediation
- Crown plug installation and removal
- Real-time wellbore logging during production
- Through tubing cast iron bridge plug installation
- Plug back
- Perforation
- Temporary plug setting and recovery
- Sleeve shifting and fishing operations
- Straddle isolation/tubing patches
- Plug and abandonment
- Deployment of specialized down-hole diagnostic and remediation tooling via slickline or wireline (e-line and braided)

Interchangeable Riserless Intervention System (IRIS)

Delivering subsea well control

The IRIS subsea well control package provides customers with a light, portable system for completing RLWI. Its field proven technology has delivered industry-first results in deepwater applications. Globally deployable from a vessel of opportunity, IRIS provides additional flexibility, cost savings, and ensures customers can complete operations where and when they are required.

The System

The IRIS is deployed in two connectable sections; a lower assembly that houses a multi-barrier well control package (WCP) and an upper lubricator assembly that includes the tool string and pressure control head. The assemblies are joined via an ROV-operated connector.

The well control package (WCP) contains the main umbilical interface, an Oceaneering proprietary wireline grease system, upper and lower gate valves and contingency BOP/RAM. The upper assembly, or lubricator, houses the relevant well intervention tool strings and subsea grease head with integral subsea dual pack-offs. Wireline tool deployment and recovery is completed with the aid of ROVs.

Increasing Functionality

IRIS provides diverse functionality via its interchangeable wireline tool string. The tool string is changed by unlatching the lubricator assembly from the WCP and recovering it with the tool string. IRIS is capable of being field configured to run slickline or e-line to meet the demands of varied well conditions and applications.

All IRIS and customer control functions are managed via the system's dedicated vessel-deployed umbilical and electrical down-line (EDL). The system also includes an umbilical termination assembly (UTA) that provides hydraulic flying lead (HFL) MQC interface with the lower assembly and project specific electrical flying lead (EFL) interface. Control functions are routed using piloted direct hydraulic architecture. Subsea tree control can be achieved by additional project-specific hydraulic and electric flying leads between IRIS and the subsea tree.

Delivering Solutions

- Our experienced team of project managers, engineers, and technicians have a proven track record of completing successful interventions executed with an uncompromised focus on safety.
- We have set multiple industry depth records in subsea intervention including successfully intervening in 8,200 fsw / 2,600 msw in the Gulf of Mexico.
- IRIS has successfully delivered with high reliability in riserless wireline runs with slickline and up to 5/16 inch electric line at pressures of up to 8,600 psi.
- IRIS supports deployment of intervention tools including wireline tractors, milling tools, logging tools, and tubing punch/perf tool.
- Dynamic wire sealing at record depths was supported by a pressure control head using our patented Oceaneering grease delivery system.

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Equipment Rating and Specifications IRIS IV

Subsea Equipment	
System pressure rating	10,000 psi / 69 MPa
System maximum water depth rating	10,000 fsw / 3,048 msw
System minimum water depth requirement	Defined by ROV operability and tree size
Minimum bore (ID)	7 1/16 in standard configuration
Wireline OD	7/32, 9/32, and 5/16 in (other sizes can be accommodated)
Slickline OD	All standard sizes
Tool string	Have run various including 4 ½ in perforating guns, retrieved and set multiple crown plugs.
E-line and slickline tool string length	Interchangeable lubricator sections to meet customer and length requirements, as required
Material classification	API 6A Class EE
Total deployment weight (excluding project specifics such as tree running tools and crossovers)	~ 34 ton (includes H4 18 ¾ in)
Grease system	Rated for wellbore pressures up to 10,000 psi / 69 MPa
Safety and fail-safe features	Shear ram and dual valves on kill line entry/exit are failsafe close
Gate valves	7 1/16 in, 10,000 psi / 69 MPa , 10,000 fsw / 3,048 msw depth rated
Shear BOP seal	7 1/16 in, 10,000 psi / 69 MPa , 10,000 fsw / 3,048 msw depth rated (NTL compliant)
Kill line side entry	2 1/16 in, 10,000 psi / 69 MPa, 10,000 fsw / 3,048 msw water depth failsafe gate valves (configurable for 2nd side entry)
ROV-controlled and direct-controlled client functions	Yes
Subsea accumulation	As required for function and depth
Control umbilical reeler	To 10,000 fsw / 3,048 msw at 10,000 / 69 MPa psi working pressure, per DNV 2.7-1
Surface accumulation skid	10,000 psi / 69 MPa max, per DNV 2.7-3
Master control station	10,000 psi / 69 MPa max, per DNV 2.7-2

X-Mas Tree Control Capability	
X-Mas tree control capability	Via electrical downline, host control, ROV override or direct hydraulic control
Low pressure hydraulic system	5,000 psi / 3.5.5 MPa
High pressure hydraulic system	10,000 psi / 69 MPa max, adjustable – SSV (subsurface safety valve) control
Control fluid	Standard water/glycol or mineral oil based subsea control fluid
Moonpool with work area Moonpool mast	