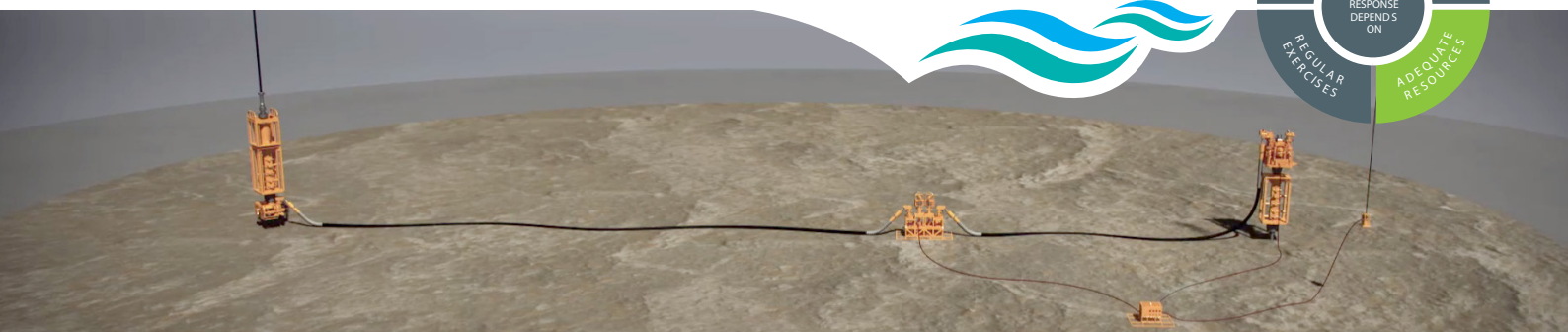
Offset Installation Equipment



Oil Spill Response Ltd (OSRL) and the Subsea Well Response Project (SWRP) have collaborated to provide subscribers with an Offset Installation Equipment (OIE). This equipment is an industry first and is designed to support subsea well intervention operations in scenarios where conditions prohibit direct vertical access to a well head.

In the event of a subsea well incident, OIE allows responding personnel to remove or install capping, containment or related equipment from a safe offset distance from an incident site.

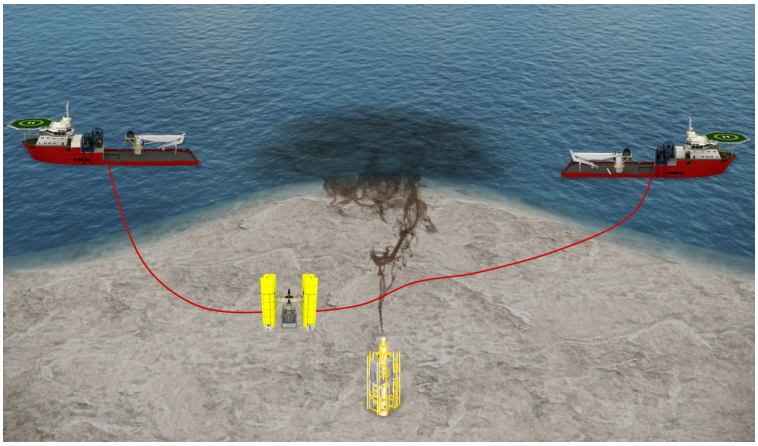
Key Features

- OIE can be deployed up to 500m offset from an incident site
- Suitable for use in a working depth range of 75-600m
- Compatible with OSRL's capping equipment
- Available to the international oil and gas industry via membership of OSRL and a supplementary subscription

How it works

A carrier, which forms the main item of OIE, comprises the following main equipment:

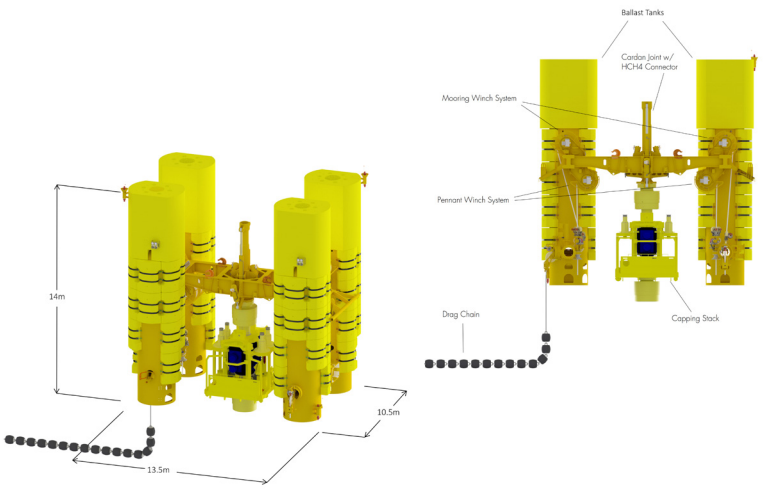
- Ballast tanks with air connection to topside compressors
- A winch system to control the carrier position and lift payloads
- A Cardan joint for capping stack positioning
- ROV interface for controlling all carrier functions from the topside control room



The carrier is initially submerged from a vessel using a depressor weight and free flooding of the four ballast tanks. Once submerged, a drag chain provides passive height control (relative to the seabed) which allows the carrier to be moved laterally by vessels into the vicinity of the incident well.

Positive buoyancy of the carrier is maintained using the ballast tanks, clad with buoyancy modules, and when used in conjunction with the ballast tank air system, provides sufficient uplift to carry a variety of response equipment payloads.

Positional control of the carrier in the vicinity of the well is achieved using mooring winches. Once over the well, the Cardan joint provides the capability to align and lower the capping stack (or other equipment) onto a blowout preventer (BOP or wellhead).
The carrier is controlled via a Well Owner sourced remotely operated vehicle (ROV) which provides an interfaced for hydraulics, power and communications.



Offset Installation Equipment pictured handling a capping stack (Left) and side view (Right) with front buoyancy assemblies removed to show structural frame

Oil Spill Response

Offset Installation Equipment

Other equipment to support OIE Carrier intervention operations include control and workshop containers, assembly and transport eqiupment and air supply equipment from topside to subsea.

Specification Table

Design / Fabrication	Saipem
Max. operating water depth	600m
Weight in air	236T
Maximum payload	136T @ 300m WD - 130T @ 600m WD
Buoyancy tanks	Qty 4-off
Mooring systems	Qty 3-off, 50T
Pennant winches	Qty 4-off, 50T
Inclination of capping stack	Up to 13.2° (1500mm stroke), 15° (750mm stroke)
Hydraulic stroke for installation of capping stack	1500mm vertical stroke
Capping stack connector	18-3/4" 15kpsi HC/H4 Collet Connector
IHPU ROV docking stations	Qty 2-off

Equipment List

Base structure	Main structure Bracings Cardan joint, including soft landing system ROV interface panel ROV emergency intervention panel Ballast tanks Buoyancy modules
Mooring	Winches Tensioning system Mooring lines Drag chain
Surface equipment	Control van container Workshop container Deck stands
Air supply	Long and short umbilical Winches Overboard fairleads and chutes Umbilical termination heads
ROV equipment	OIE-specific, isolated hydraulic power unit ROV skid (IHPU)
Equipment for storage and transportation	Transport pallets Transport containers
Testing equipment	Electric hydraulic test jumper Dummy stab plate with connectors Test console Test hydraulic power unit Dummy capping stack
Assembly equipment	Carrier assembly frame
Other equipment	Operational spares

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