

Components of WellCONTAINED Subsea Solutions

- In-house Response Personnel
- Capping Stack Installation Plans - Drillpipe
- Capping Stack Installation Plans - Work Wire
- Capping Stack Shut-in plans
- Logistics Plans
- Debris Removal Plans
- Dispersant Application Plans
- Capping Stack Interface Checks
- Sea Fastening Plans

ADDITIONAL SERVICES

- Source Control Emergency Response Plans (SCERP)
- Shallow Water Capping Plans
- Relief Well Plans
- Blowout / Dynamic Kill Analysis
- Broaching Simulation and Analysis
- Bullheading Analysis
- Dynamic Temperature Modeling
- Well Control (Kick) Modeling
- Atmospheric Dispersion and Radiant Heat Analysis
- Subsea Plume Analysis
- Response Drills
- Training

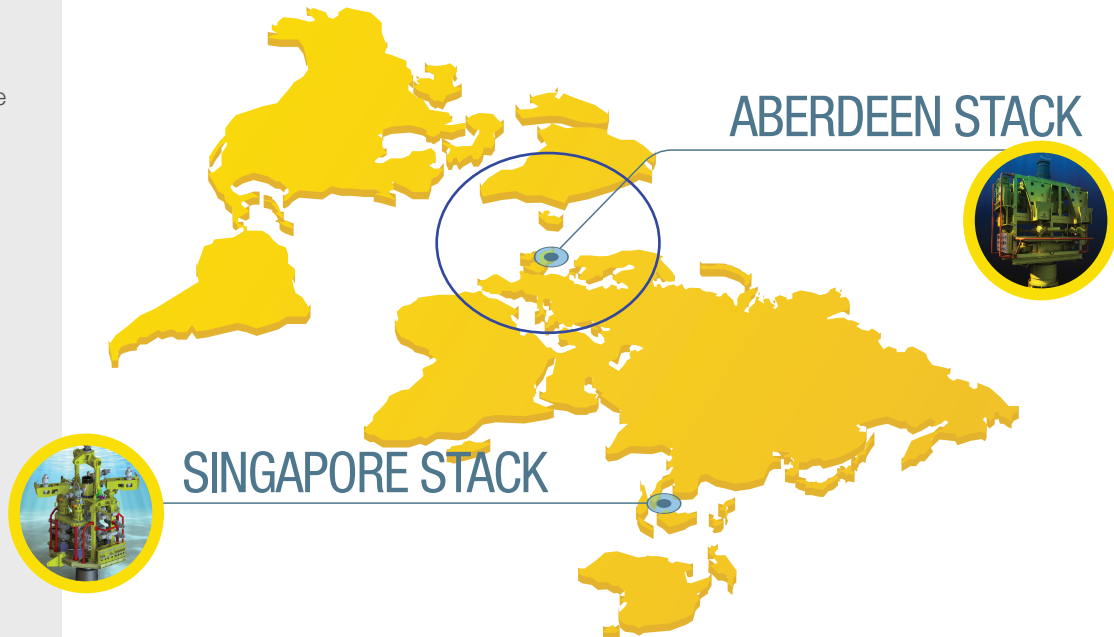


WellCONTAINED™ 15K Stack - Regional Response Package

Prevention and Response

Drawing from more than 40 years of experience, the WellCONTAINED Subsea Containment group provides the industry with unique, comprehensive solutions to offshore, deepwater well control events.

Prevention and response serve as cornerstones to the WellCONTAINED set of solutions, providing operators with a full-service response in a right-sized package.



The 15k WellCONTAINED Subsea Capping Stack

WellCONTAINED delivers an adaptable-response equipment package built for a variety of subsea scenarios. Based on extensive experience in subsea well control, the kit's design criteria provides for a depth rating to 10,000 fsw, 15,000 psi shut-in pressure, and dual mechanical barriers, complete with ROV-controlled functionality.

The capping stack's modular design facilitates deployment on a readily available deployment vessel. The system is verified by third parties and staged for deployment at our Aberdeen location.

A **6-stage disaster response timeline** provides a roadmap to containment for all subsea and deepwater events.



1

Initial Response

- Evacuate and account for all personnel; attend to medical needs.
- Activate and put into action emergency response plans.
- Make all necessary intercompany and regulatory notifications.
- Mobilize assets and personnel to manage and assess the situation.
- Set up Spill Response and Source Control Teams.

2

Survey and Planning

- Personnel and equipment arrive; site survey and incident assessment conducted.
- Formalize response plan and additional resource needs.
- Call out additional equipment and personnel as required by the response plan.

3

Mobilization of Resources

- Surface spill response teams begin operations.
- Dispersant application on surface and at source (subsea).
- Additional personnel and equipment arrive.
- Assemble, test, and load response equipment onto vessels for transit to location.

4

Interim Response

- Continue dispersant application.
- Attempt direct subsea intervention operations on drilling BOPs.
- Conduct subsea debris clearance
- Prepare for capping stack installation
- Monitor well for any changes in flow/conditions.

5

Cap and Contain

- Capping stack transit to location.
- Install capping stack on well.
- Shut in well and monitor well data to determine if further action is required.

6

Relief Well Operations

- Relief well rig arrives on location and spuds relief well.
- Relief well drilling.
- Final kill and plugging of wells.

Note: All time frames occur after incident and are dependent on the complexity of the event.

15k STACK - ABERDEEN

Date in Service	Q3 2019
Status	Ready
Manufacturer	Wild Well / Cameron
Pressure Rating	15,000 psi
Water Depth Rating	10,000 ft
Main Bore	2ea, 13 5/8-in. Cameron type UM BOPs with Blind Shear Rams
Diverter Below	No
Outlets	4ea, 3 1/16-in. Outlets
Chokes	2ea, 3 1/16 in.
Connectors	Cameron HC and Cameron H4
Weight	75 MT
Airfreight	No
Chemical Injection Capability	Yes
Controls	ROV Hydraulic and Torque Tool
Running Methods	Work Wire and Drillpipe
In-house Planning, Engineering, and Deployment Services	Yes

