Subsea Equipment and Deployment

Marine Well Containment Company’s (MWCC’s) subsea equipment is a critical component of the company’s Containment System and its ability to be continuously ready to respond in the event of a deepwater well control incident in the U.S. Gulf of Mexico.

About the Subsea Equipment

MWCC’s subsea equipment includes three capping stacks, Subsea Umbilical, Risers and Flowlines (SURF) equipment, Subsea Dispersant Injection System (SDIS), Hydrate Inhibition System (HIS), Subsea Autonomous Dispersant Injection (SADI), Riser Insertion Tube Tools (RITTs), Free Standing Risers (FSRs), Light Duty Intervention System (LDIS), Umbilical Termination Assembly (UTA), top hats, manifolds and additional ancillary equipment.

Depending on factors of the well control incident, MWCC will mobilize its subsea equipment for deployment to the incident site from MWCC’s two shore bases, where the equipment is stored and regularly tested and maintained. The SURF and subsea equipment are mobilized using the services of Technip USA and Core Industries at the SURF Shore Base in Theodore, Alabama, near Mobile. Simultaneously, the capping stack is mobilized at Kiewit Offshore Services (KOS) where MWCC’s MCV Shore Base is located in Ingleside, Texas, near Corpus Christi. The Responsible Party (RP) identifies and contracts the support vessels that are sent to MWCC’s two shore bases to facilitate the transportation of equipment to the incident site.

Subsea Equipment Deployment

After debris from the well is cleared, subsea equipment installation may begin once the support vessels arrive at the incident site. The SDIS, which injects dispersant at the source to help break down the hydrocarbons, will be deployed first along with an initial supply of dispersant to provide a safe working environment for response personnel and vessels. The HIS will be deployed and utilized if conditions require prevention of hydrate formation within the subsea equipment, and the SADI may be installed in the event there are concerns with weather interruptions during response operations, such as during hurricane season. Additional subsea systems may be installed based on the condition and...
requirements of the well, including interim collection equipment such as the top hats, which capture leaking fluid that is vented from the incident well and the RITTs, which capture leaking fluid from the riser.

MWCC will then deploy one of the system’s three capping stacks, which is the centerpiece of the containment system. Capping stacks are designed to cap or cap and flow fluids in a deepwater well control incident. Specific factors of the well control incident will determine which capping stack will be used in a given scenario. These factors include the containment requirements of the well, proximity to other wells and risers, pressure, temperature, and if it is a cap only or cap and flow scenario. Based on these factors, either the Subsea Containment System (SCA) – the newest capping stack – a 15k psi Capping Stack (single ram) or 10k psi Capping Stack (double ram) will be utilized.

In a cap and flow scenario, additional subsea equipment is installed, including the manifold and Pipeline End Termination (PLET). The manifold regulates the flow of fluid between sources to stabilize flow and pressure and connects the capping stack to the FSR. The PLET serves a similar function, also connecting the capping stack to the FSR. The FSR, which connects the topsides and subsea equipment, is one of the few in the industry that can reach depths of 10,000 feet.

If the SCA is deployed for a cap and flow scenario, the capping stack is controlled by an umbilical without the need for remotely operated vehicles (ROVs). The umbilical provides real-time data about the well including the pressure and temperature via connection to the UTA and to the Eagle Texas (MCV A), one of MWCC’s two Modular Capture Vessels (MCVs). Once all equipment is installed on the sea floor, fluid is routed from the well via the capping stack and FSR to the MCV for processing and storage.

After the deepwater well has been contained, the subsea equipment is refurbished and sent to the respective shore bases for storage and preservation.