Topside Processing Equipment

Topside processing equipment, an integral part of Marine Well Containment Company's (MWCC's) flow back capability, will be installed onto the company's Modular Capture Vessels (MCVs) in the event of a deepwater well control incident in the U.S. Gulf of Mexico. The equipment serves to capture and process fluids from the well in a safe and effective manner.

About the Equipment

The topside processing equipment includes sand removal; liquid and gas separation systems; chemical injection equipment including tanks, pipes and pumps; power systems; and a flare boom for flaring gas. The equipment is stored, maintained and tested at MWCC's MCV Shore Base at Kiewit Offshore Services (KOS) in Ingleside, Texas, near Corpus Christi.

Installation

In the event of an incident, MWCC will install the topside processing equipment onto the MCVs – the Eagle Texas (MCV A) and Eagle Louisiana (MCV B) – to create a complete processing system on each vessel.

The equipment has been assembled into large modules to facilitate more efficient transportation, lifting and installation from the dockside onto the MCV. Nine modules will be installed onto the Eagle Louisiana and 10 modules onto the Eagle Texas. The Eagle Texas receives one additional module that manages the chemicals for use with the umbilical in addition to a control system necessary to operate the Subsea Containment Assembly (SCA) via the umbilical.

Modules are installed in a unique sequence in order to optimize time; safe, simultaneous lifting operations; and efficient hook-up and connection points on the MCVs.
In the event of an incident, module K will first be installed onto the starboard side, followed by module A (Eagle Texas only), which includes the chemicals used with the umbilical. Next, the high pressure and low pressure knock out drums, modules B, C and D, are placed on the port side. The vessel will rotate 180 degrees to provide crane access to the starboard side. Module E will then be positioned, which includes the subsea control unit, followed by module F and H. Then, module G, the Riser Turret Module (RTM), will be installed to serve as the link between the subsea and topside equipment. Finally, module J, the flare boom and flare boom water curtain, is installed.

A rendering of the modules aboard the Eagle Texas.

Processing, Operations and Capacity

Operated by the Reservist Response Team, the equipment separates sand, and processes liquids and gases once the combination of oil, gas, sand and water flow through the flexible flowline and the Free Standing Riser (FSR) to the MCV. The well fluids enter through the RTM, which flows the liquids into the processing equipment. A desander, a high pressure separator, and a low pressure separator allow for the controlled separation of the liquid and gas. Once separated, oil and water is routed to cargo tanks on the MCV and later offloaded to shuttle tankers for transportation to treatment facilities for further processing. In total on the two MCVs, the processing equipment will be able to process up to 100,000 barrels of liquid per day (bpd) and flare up to 200 million standard cubic feet per day (mmscfd) of gas.

Once the well has been contained and topside processing equipment is no longer needed, it is refurbished and sent back to the MCV Shore Base for storage and preservation.