SafeStack Technology Executive Summary

The basic design concept of the SafeStack system is the replacement of the current two component BOP stack with a three component configuration, which consists of a Riser Disconnect Package (RDP), a modified LMRP, and the lower BOP stack. The lower BOP has not been modified beyond it connection point to the LMRP. The new RDP/LMRP combination is the same overall height (or possibly shorter depending on configuration) as the current LMRP but now splits to expose a connection point above the LMRP.

We have engineered a new connection system as part of the RDP that we believe has several improvements over what is available today, this consists of a proprietary wellhead connector as well as a unique tool incorporating a commercially available flex joint with our connector system in a single embodiment. Our connector can be used anywhere in the BOP stack that a connector is used today, and on a capping stack, with greater functionality than connectors currently in use.

Additionally, we have designed annular BOP modifications which provide 15 kpsi well bore pressure rating from the wellhead to a capping stack affixed to the top of the LMRP, large bore bypass capability to provide additional flow path if required, and configurations that incorporate several design concepts which reduce the number of flanged connections and potential leak paths as well as overall BOP stack height reduction.[1]

The system also incorporates latch/seal plates at various locations in the BOP stack. These allow connection of a proprietary flow cap or mechanical latching connector to provide additional methods of flowing the well should it not be possible to install a capping stack or other similar device. We have also included a resident ROV system in our proprietary design which provides an enhancement to the rig based work class ROV and a rapid response capability to address BOP and seabed requirements, as well as sonar technology incorporated into the RDP that further enhances operational capabilities not addressed in today's BOP systems.

The SafeStack three component system provides the additional connection point for a capping stack in an emergency situation should it not be possible to remove the LMRP from the stack, plus, provides a method to recover the LMRP or BOP stack to the surface without recovering the marine drilling riser to the rig, thus saving rig downtime in the event of BOP or LMRP failures during normal drilling operations. Rather than introduce new and unproven technology, our system utilizes proven and trusted components which are utilized in various new combinations and configurations to provide additional well containment/control possibilities and the opportunity to execute drilling operations more safely and efficiently.

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[1] SafeStack also has the ability to set a 20 kpsi system with its patented modular component design.