

## Subsea Processing: Deepwater Operation and Production

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**Abstract :** In recent years, there has been a rapidly accelerating shift from traditional surface processing operations to subsea processing operation. This shift has been driven by a number of factors including the depletion of shallow fields around the world, technological advances in subsea processing equipment, the need for production from marginal fields, and lower initial upfront investment costs compared to traditional production facilities. Moving production facilities to the seafloor offers a number of advantage, including a reduction in field development costs, increased production rates from subsea wells, reduction in the need for chemical injection, minimization of risks to worker ,reduction in spills due to hurricane damage, and increased in oil production by enabling production from marginal fields. Subsea processing consists of a range of technologies for separation, pumping, compression that enables production from offshore well without the need for surface facilities. At present, there are two primary technologies being used for subsea processing: subsea multiphase pumping and subsea separation. Multiphase pumping is the most basic subsea processing technology. Multiphase pumping involves the use of boosting system to transport the multiphase mixture through pipelines to floating production vessels. The separation system is combined with single phase pumps or water would be removed and either pumped to the surface, re-injected, or discharged to the sea. Subsea processing can allow for an entire topside facility to be decommissioned and the processed fluids to be tied back to a new, more distant, host. This type of application reduces costs and increased both overall facility and integrity and recoverable reserve. In future, full subsea processing could be possible, thereby eliminating the need for surface facilities.

**Keywords :** FPSO, marginal field, Subsea processing, SWAG

**Conference Title :** ICIEST 2015 : International Conference on Innovations in Engineering, Science and Technology

**Conference Location :** Kuala Lumpur, Malaysia

**Conference Dates :** August 24-25, 2015