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Challenges in Deep Water Completions and Subsea Architecture Design of S1 and Vasishta Fields in Eastern Offshore, India: A Case Study

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The Krishna Godavari basin which extends into the Eastern offshore of India is a major hydrocarbon hub of India with new developments.Although Hydrocarbons were discovered in the deep water regions of Eastern Offshore in the KG basin long ago, development of the fields started only recently owing to the availability of proven and reliable subsea equipment and controls technology, developments related to vessel and rig stability and improved cost economics. The vessel and rig stability were very important factors because of the weather conditions that exist in the eastern offshore, India.Vasishta and S1 Gas fields are two such deep water fields located in water depths ranging from 300m to 700m in Eastern Offshore, India. VA-S1 field development project in G-1/Vasishta PML of erstwhile KG-OS-DW-IV block was one of the earliest deep water projects in the eastern offshore of India, was undertaken by ONGC with 100% participation interest and was completed in March 2018.

The objective of this paper is to describe:

- The basis of field development layout,
- The basis of subsea equipment selection,
- Subsea trees selection and installation,
- Subsea structures,
- Lower and upper completion design
- The challenges encountered during the execution of the project
- The approaches to overcome those problems.