

# Flow Assurance

Flow assurance services from concept, through FEED & detailed design and to operations support.

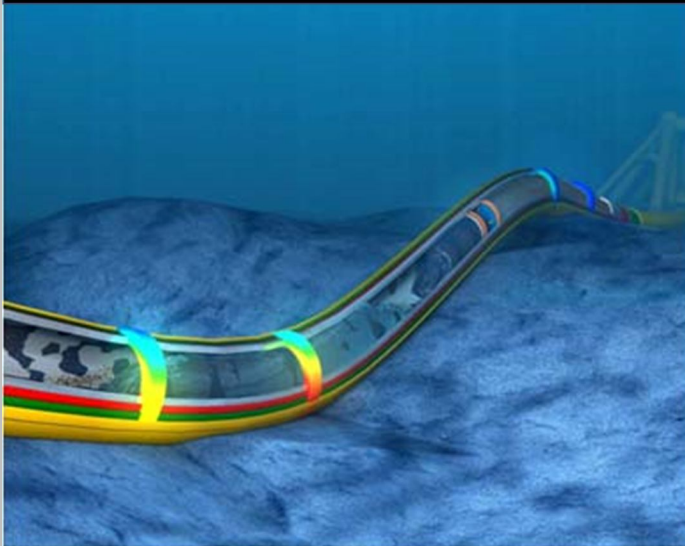


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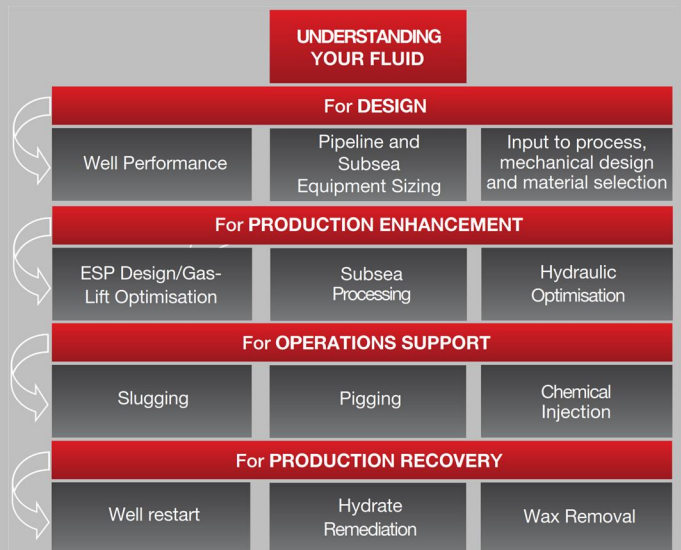


## Challenging field development?

*We perform a comprehensive Flow Assurance study which analyses all areas of the fluid-pipe interaction leading to the development of a design and operational philosophy.*

*Experience includes liquid systems, gas-condensate systems, HP/HT, heavy oil, solids transport, production/injection systems and deepwater developments.*

- **Fluid Analysis:** Is performed to ensure the fluid basis is representative of the production fluid.
- **System Hydraulic Capacity:** Pipeline sizing and steady-state thermo-hydraulic studies, pipeline network analysis, production optimisation and well performance.
- **Thermal Analysis:** Our thermal analysis studies evaluate the optimal thermal management strategy needed to get the right balance between a robust design, cost and operability.
- **Transient Analysis:** PETROFLOW performs detailed analysis of the system's response to transient operations such as production shutdown, blowdown, turn-down/ramp-up and start-up.
- **Slugging Analysis:** Our slugging solution includes slugging prediction in pipeline/risers and slug-mitigation options evaluation.
- **Hydrate Management:** Develop hydrate prevention philosophy for design and operating procedures.



- **Wax Management:** Wax prediction, wax deposition studies and removal (recommendation of pigging frequency and operational support).

**Real-time Simulation & Flow Assurance Experts**