Hydrate & Wax Blockage Remediation

Nature of blockages determined early on enabled adoption of the optimal remediation method and significant cost savings

A West Africa field operator witnessed an abnormal increase in pressure topsides when the flowline circulation pump was used to pump dead oil into the production line. No increase in subsea pressure was observed. Operational history prior to blockage hinted at the possibility of the presence of one or both wax and hydrate blockages in the production line. Depressurization options were limited by the blocked gas lift line.

**Plan of Execution**

1. The production line with the blockage was depressurized to the lowest possible pressure topsides.
2. Nitrogen was injected topsides to displace fluid on top of the blockage minimizing pressure head.
3. Methanol (MeOH) and Xylene were injected subsea to create maximum pressure differential across the blockage.
4. The gas lift line was single side depressurized from topsides with alternating MeOH injection subsea.

**Technical Achievements & Benefits**

- The nature of the blockages in the production and gas lift lines were determined early-on through an in-depth engineering assessment of the flow assurance strategy, production chemistry, and operational history. This enabled adoption of the optimal blockage remediation methodologies.
- Production was not impacted during the remediation process.
- Existing facilities and chemicals were used without the need to mobilize vessels. This resulted in significant cost and time savings for the customer.
- Post remediation measures and changes to the existing operation philosophy and operating procedures were provided as value-added services.