Case study: Offshore Africa

Collaborative partnership solved challenging logistical problems

A customer's deepwater project off the coast of Africa comprised a gas injector well, four water injection wells, and six production wells, all attached to a floating production, storage, and offloading vessel (FPSO). Since the project was the first development outside of the home country and the first oilfield in the region, the customer had to achieve first oil on schedule and reach capacity production levels as quickly as practical.

The shortage of oilfield infrastructure in the region was a key hurdle. The customer needed a partner with a global presence and a solid track record resolving challenging logistics issues. Because of our proven track record, creative problem solving, and worldwide technology resources, Baker Hughes was asked to ensure the smooth delivery of production chemicals and services.

In discussions with the customer, we identified three key customer concerns:

- Timely establishment of a supply chain plan and a local presence
- Efficient delivery of first fill and a sufficient product inventory
- Quality subsea chemicals that met environmental guidelines including chemical and material compatibility

When the contract was awarded, there was no production in the area, so there was no upport infrastructure.

Several Baker Hughes product lines had supported the project's drilling campaign, so their presence was leveraged to implement the supply chain plan.

In cooperation with the customer, a chemical services program was designed to address specific production concerns for all downhole, subsea, and topside equipment. After determining all technical requirements and reviewing local availability, Baker Hughes developed a global chemical services supply chain plan that started from manufacturing sites in both the United Kingdom and the United States and ended at the production facilities in Africa. The plan used land leased by the customer and included the local port authority and a third-party logistics company.

Baker Hughes provided the first fill of chemical to the FPSO before it sailed from Singapore and delivered 135 days of chemical supplies to the local warehouse. The chemicals met all technical requirements including certification of NAS 10 for subsea chemicals. All products met compatibility requirements as documented by Baker Hughes and third-party suppliers.

Challenges

- New deepwater project, 2,600 ft (800 m), offshore Africa using FPSO
- Achieve first oil on schedule
- Establish a local presence and a supply chain plan
- Deliver first fill along with sufficient product inventory
- Ensure chemical and material compatibility
- Meet subsea chemical quality guidelines
- Develop and implement comprehensive plans for FPSO operation

Results

- Smooth startup
- Fit-for-purpose chemical service program
- New, local support infrastructure
- Efficient delivery of chemicals and services to isolated production site
- On-time completion of performance goals

To ensure a smooth startup, Baker Hughes trained and deployed an offshore rotation team and mobilized the team before first oil. After developing plans and procedures for all chemical tank handling, decanting operations, and related HS&E requirements, Baker Hughes provided oversight to ensure long-term compliance with the procedures.

Baker Hughes provided the customer:

- The capability to meet timelines and performance targets
- Chemical treatment programs for all aspects of FPSO operation
- Design and coordination of supply chain plans and procedures
- First fill and product inventory for rapid production rampup
- Product handling equipment and expertise

Close collaboration, clearly identified priorities, global resources, and strong teamwork and trust were the key factors in this successful startup.

Offshore project parameters	
Water depth	2,600 ft (800 m)
Production wells	6
Water injection wells	4
Gas injection wells	1
Oil production capacity	75,000 BOPD (11,900 m^3/d)
Water processing capacity	60,000 BWPD (9,500 m^3/d)
Water injection capacity	100,000 BWPF (15,900 m^3/d)

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