

# Subsea Service Alliance Integrated Subsea Well Intervention Project

## Well Ops - Q7000

Offshore Nigeria



# The Q7000 successfully completed its first Integrated Subsea Well Intervention Project with 96.86% uptime and zero lost time incidents.

## Project Overview

In October 2019, Helix Energy Solutions completed commissioning its third semi-submersible subsea well intervention vessel, the Q7000. The Q7000 is a culmination of the experience and lessons learned from our existing fleet of riser-based intervention vessels incorporating vessel design elements from her sister vessels Q4000 and Q5000, with advanced topsides equipment developed for the *Siem Helix 1* and *Siem Helix 2* monohulls.

Our newest world class subsea well intervention vessel was commissioned with a fully integrated well services package in conjunction with our Subsea Services Alliance partner Schlumberger. Helix outfitted the Q7000 with wireline, slickline, coiled tubing and pressure pumping spreads in an optimized layout with dedicated service areas to increase safety and vessel efficiency.

The Q7000's first project was successfully delivering a 5 well campaign performing subsea workover and integrated well intervention services with a major client offshore Nigeria, with the primary objective being to increase subsea production. The scopes of work performed included:

- Water Shut off/Zonal isolation
- Hydrate Milling/CT Clean up
- Remedial Safety Valve operations

Objectives on all 5 wells were successfully completed in a single deployment of Helix's Intervention Riser System (IRS6) over a 10 week period with **96.86% uptime efficiency**. The project was executed with **zero lost time incidents or accidents**.



### Experience

Over 30 years of experience in subsea well intervention, communicated through technology transfer to support local content development.



### Innovation

A culmination of decades of marine and topsides experience to result in the reference for intervention vessels.



### Value

First job. >96% uptime and 25 days rig-time saved.

## Project Location

The 5 well campaign performing subsea workover and integrated well intervention services with a major client offshore Nigeria was located 65 miles offshore in 1,210m water depth. This was Nigeria's 1st coiled tubing hydrate milling project.



## About the Q7000

The Q7000 can perform through-riser Well Intervention and decommissioning operations in water depths ranging from 85m to 3,000m, utilizing the Helix designed Intervention Riser System (IRS) which features a High-Angle disconnect system and redundant MUX control system.

With its' open deck plan and tri-axial configuration, the Q7000 is capable of a wide range of Production Enhancement operations as well as well clean up and field development support.

It is equally optimized for well decommissioning including suspension, tubing removal, tree recovery and sea floor clearance.

In operations, the unit has a variable deck load capacity of circa 3,000 Te in addition to well intervention and service fluids.

The Q7000 is arranged with a sophisticated (active and passive heave compensation) 600 Te multi-purpose tower on the upper deck, and has a large flush deck with multi-pallet skidding system for well intervention support equipment and tubulars storage. It has below deck twin work class ROV systems, bulk fluids storage and pumping systems.

## Project Challenges

This project combined a number of challenging 'firsts' for Helix.

The Q7000 is equipped with a brand-new subsea well access package called an Intervention Riser System (IRS 6). IRS systems enable access to both conventional and horizontal subsea trees in depths down to 10,000 ft and can be utilized for wireline intervention, production logging, coiled-tubing operations, well stimulation and full plug and abandonment operations.

Due to schedule changes, it was not possible to run the IRS6 on a test well, thus the system was initially deployed and received its class certification on a live well, completed in a single deployment over a 10 week period with 96.86% uptime efficiency.

This was the first time in company history that Helix worked in Nigeria.

# First Q7000 Project MILESTONES

**5** Wells completed in a single IRS deployment

**96.86%** uptime  
1,752 hours (73 days)

Subsea well hops **4**

**0** Zero LTI incidents or accidents.  
Utilized a walk to work (W2W) system which eliminates lifts across deck

Helix's first job in Nigeria **1<sup>st</sup>**

**1<sup>st</sup>** First project by newly trained Nigerian crew

First job out of the shipyard using a new well access system. **1<sup>st</sup>**

**0** Zero delays in mobilization of tools and personnel



To comply with local content requirements, Helix hired and trained a new crew, predominantly from Nigeria for this project. Training commenced in the shipyard with crew joining the vessel in Singapore to learn key skills, methods in disciplines and the Helix 4 Pillars of Safety program.

The final weeks of the project were affected by travel restrictions related to the COVID-19 global pandemic. New safety protocols for protecting the crew were implemented quickly. Under these demanding and stressful conditions, the vessel and crew were able to complete all objectives for the client, maintaining the same levels of efficiency and a perfect safety record.

A project risk assessment identified local importation of spares into Nigeria as having potentially high impact on the program. Thus, all equipment and foreseeable spares were loaded onto the vessel in the shipyard to allow for a fully autonomous operation.

## Conclusions

The Q7000's first successfully delivered a 5 well campaign performing subsea workover and integrated well intervention services with a major client offshore Nigeria.

- **5 wells in a single IRS deployment**
- **Project executed in 25 days less than planned**
- **96.86% uptime (1,752 hours or 73 days)**
- **4 subsea well hops**
- **Zero LTI, walk to work, no lifts across deck**
- **Worked 238,584 Man-Hours**
- **First 1st coiled tubing hydrate milling in Nigeria**
- **First job by newly trained Nigerian crew**
- **First job with new build vessel and new well access system.**
- **Zero delays in mobilization of tools and personnel**



## Q7000 Vessel Features

- DP3 semi sub well intervention vessel
- ITF/maintenance tower/walk-to-work
- Coiled Tubing
- Wireline/slickline
- Pressure pumping
- Well Testing area
- Harsh environment ROV deployment
- Pallet skidding system on deck
- IRS6





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