



Weatherford®

REAL RESULTS

GoM: Successful, Safe Installation of Production Risers, Tubing, and Landing Strings for World's First Truss SPAR

Objectives

- Kerr McGee's Nansen/Boomvang deepwater development in the East Breaks area of the Gulf of Mexico contains the world's first truss SPAR. Nansen/Boomvang are floating production facilities (SPARs) in 3,450 to 3,650 ft (1,052 to 1,173 m) of water depth and handle the production from dry-tree wells on the topside platform and from remote subsea satellite wells. The Nansen SPAR has a total of nine dry trees, with three subsea wells tied back. The Boomvang SPAR has a total of five dry trees, with three subsea wells tied back.
- Weatherford was contracted by Kerr McGee and has been extremely instrumental in the project's success to date, providing installation services and equipment for all production risers and tubing on the SPAR dry-tree wells and all tubing and landing-string installation services on the subsea wells. All tubulars were special alloy "hyper" chrome with multiple control lines, presenting some of the most challenging installation orientations in the industry.



Client

Kerr McGee

Location

Deepwater Gulf of Mexico (East Breaks)

Project

Nansen & Boomvang truss SPARs

Water Depths

3,450 to 3,850 ft (1,052 to 1,173 m)

Products/Services

- Tubular running services
- Vario™ compact spider/elevator
- JAM® XP torque monitoring system and connection makeup software
- CMS 4000 dual tubing tong
- StabMaster® vertical alignment tool
- 14-100 riser tong
- Pushmaster® tong positioning device
- TripMaster™ pneumatic weight compensator



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Results

Subsea Completions: Diamond Ocean Star

- Installed tubulars and gas-tested connections on 3 1/2- and 4 1/2-in. 13CR110 BTS 6 production tubing with “smart well” capabilities, chemical injection, pressure/temperature gauges, SCSSV control lines, and 7-in., 32-lb/ft P-110 TC II landing strings with 3 1/2-in. control umbilical on all six subsea completions, using the following equipment:
 - 7 5/8-in. tubing tongs with integral free-floating backups and MicroGrip® non-marking technology
 - Remotely operated 350 Vario™ compact spider/elevator with *MicroGrip* technology
 - Pneumatic single-joint compensator
 - JAM® XP torque monitoring system
 - Mixed-gas-connection pressure-testing system
 - 350-ton (landing string) spider (modified to accommodate 3 1/2-in. control umbilical)
- All tubing and landing strings were installed successfully with zero nonproductive time (NPT), incidents, or damage to control lines. The most challenging part of the job was orienting the control lines on the tubing 180° apart: a four-line flatpack on one side and three other flatpacks on the opposite side. In addition, Weatherford designed the new 350 Vario™ compact spider/elevator specifically to address the inherent “gripping” problems associated with handling the new “hyper” or “super” 110 yield special alloy tubulars such as these, with 100% success.



SPAR Production Tubing: Nabors Rigs 140 and 143

- Installed fourteen 3 1/2-in., 9.30-lb/ft 13CR110 BTS-6 × 1.9-in. L-80 BTS-6 “mud Line” dual completions with “smart well,” chemical injection, pressure/temperature gauges, and SCSSV control lines run simultaneously with the following equipment:
 - CMS 4000 dual tubing tong with integral backup and non-marking technology
 - 350-ton dual spider/elevator with *MicroGrip* non-marking technology
 - Remotely operated hydraulic spider baseplate (to accommodate control lines and protector clamps)
 - Pneumatic single-joint compensator
 - Derrick-mounted control-line guide
- All jobs were completed successfully with zero NPT or incidents, zero damage to control lines, and with continuous improvement on run times, reducing installation time by nearly 20%.



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Results (continued)

SPAR Production Risers: Nabors Rigs 140 and 143

- Installed fourteen 9 5/8-in., 53.50-lb/ft X-80 RTI SD (weld-on connectors) production riser strings, using the following equipment:
 - StabMaster® vertical alignment tool
 - 14-100 riser tong with integral backup
 - PushMaster® tong positioning device
 - TripMaster™ pneumatic weight compensator
 - JAM® XP “delta dump” connection makeup software
 - MicroGrip non-marking spider
- All riser strings were run “stabberless,” without a person in the derrick. All jobs were completed successfully with zero NPT or incidents and with continuous improvement in run times, reducing installation time by nearly 50%.



Weatherford is extremely proud of zero recordable incidents to date on the entire project, with over 30,000 man-hours.