



DRILLING SERVICES

Multilateral sand screen a first

A WORLD'S FIRST was achieved by Weatherford International's Well Completion Systems division with the successful deployment of expandable sand screen (ESS) technology in BP's North Sea Harding PS2yx multilateral well. ESS consists of overlapping woven metal wire mesh screens that wrap around a slotted tube that is covered with a protective shroud.

During installation, a tapered cone or mandrel is pushed from the top down through the inside of the ESS. This causes inner and outer layer expansion and conformity to the required diameter.

The screen can expand to approximately 50% of its run-in diameter, enabling the ESS to fit most any wellbore while remaining small enough to pass through restrictions.

Following drilling of the Harding multilateral well through the reservoir sections, a 4-in. ESS was installed and expanded in

both the 900 ft and 1,800 ft lateral sections.

"Downhole sand control is essential for all Harding wells due to the highly unconsolidated nature of the formation," said Graham McKay, Harding's Senior Petroleum Engineer.

"The close proximity of PS2 to the gas oil contact presented considerable risk of incurring premature gas coning," Mr McKay continued.

"This was mitigated using ESS and multilateral technology to achieve our design production rate of 10,000 b/d while maintaining effective inflow performance and drawdown management across producing intervals."

The companies spent nine months planning the multilateral well to ensure the optimum technical solution to reach BP's primary objective of increasing field production and accessing bypassed oil in the top of the reservoir. ■

Baker sets record horizontal gravel pack

BAKER OIL TOOLS recently set another horizontal gravel packing record with a 7,324 ft completion in the Texaco operated Captain field in the UK North Sea. This completion surpassed the previous horizontal gravel packing record of 4,000 ft set by the company in November 1998, according to Baker.

In May 2001 the Texaco Captain 13/22a-B2 well was completed at a total depth of 19,990 ft as an open hole gravel pack using 5 1/2-in. x 230 micron with medium weave Baker Oil Tools EXCLUDER screens.

Prior to the completion, the well consisted of a 11 3/4-in. x 9 5/8-in. tapered casing string set at 7,048 ft and a drilled 8 1/2-in. hole to a total depth of 14,372 ft. The horizontal section was begun at a true vertical depth of 2,925 ft.

To accomplish the gravel packing objectives, Texaco and Baker designed and implemented a systems approach that integrated customized drilling fluids, high-rate displacement and hole cleaning procedures and Baker Oil Tools' EXCLUDER

Extended-Longevity Sand Control Screen, CS-300 open hole gravel packing system, BetaBreaker valves and FLCV's (fluid loss control valve).

The completion procedure was designed to control fluid loss in the horizontal section with very high permeability and a very small operating window between formation pressure and fracture pressure.

The well was successfully gravel packed with 174,920 lbs of 16/30 gravel. Completion brine was used as the gravel carrier fluid. Approximately 70% returns were maintained while punping.

The first of the 4,000 ft horizontal gravel packs was installed in the Captain field in November 1998 following extensive technical, operations and logistics planning. Using a brine carrier fluid, 137,000 lbs of gravel was placed in the annulus between the borehole and the EXCLUDER screen. Gravel placement was successful despite the presence of a non-cemented open hole sidetrack in the final 4,000 ft long horizontal section. ■

FMC gets contracts

FMC ENERGY SYSTEMS has been contracted to supply three deepwater solutions for Petrobras totaling approximately \$17 million.

FMC will supply subsea equipment to Petrobras for several deepwater Campos Basin fields. Equipment to be supplied includes 18,200 ft of completion riser joints scheduled for delivery in the second half of 2002. The contract includes design, fabrication and factory acceptance testing.

Additionally, FMC will supply vertical subsea trees for several development projects in the Campos Basin. The trees, designed for installation in water depths of 5,000 ft, are scheduled for delivery in the third quarter 2002.

Also, FMC will supply a pipeline termination manifold for Petrobras' Roncador field. The manifold is scheduled to be delivered in the third quarter this year.

FMC CBV Subsea, a unit of FMC Energy Systems, has been supplying total integrated subsea solutions for the Brazilian oil industry since 1961

FMC CBV's activities in Brazil combine local engineering, project management, manufacturing, integration testing, installation and customer support. ■

Industry first

DART, THE ABERDEEN-BASED drilling training simulator has become the first facility to be recognized by OPITO, the national training organization for oil and gas extraction, for its transition training course that takes experienced assistant drillers to driller standard through an intensive experiential training course.

Deutag believes the facility is the first in the world to offer this level of training on a commercial basis.

Recognizing that most drilling personnel have not encountered serious drilling issues, the option of providing simulator training to provide a broad range of experience, without risk, was considered beneficial.

The course was audited by OPITO to verify that it delivered the standards the industry wished to achieve.

The simulator is used to train drilling teams, well engineering teams and is also used by operators to anticipate conditions for new wells at the well design stage. ■