

Sondex MAPS

SONDEX'S MAPS (MULTIPLE Array Production Suite) tools can be run with a standard production logging tool string and can detect small hold-ups on high or low side of a well. It offers through-tubing deployment, and a centralized tool has minimum possible effect on flow

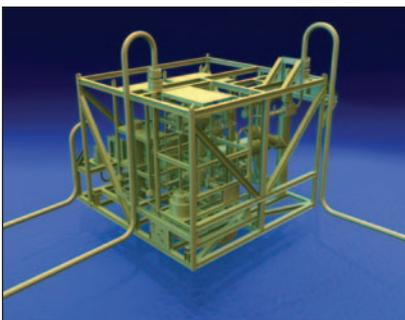


profile. Orientation is determined by internal relative bearing sensor: The CAT (Capacitance Array Tool) has 12 miniature sensors mounted in collapsible bowsprings that provide fluid identification around the whole wellbore. The RAT (Resistance Array Tool) has 12 micro resistance sensors to determine water hold-up across the whole wellbore. Water is conductive; oil and gas are not. The

RAT sensors measure the resistance of the fluid at their tips. The SAT (Spinner Array Tool) features 6 miniature turbines deployed on bowspring arms, enabling discreet local fluid velocities to be measured at 60° intervals around the wellbore.

Cameron CAMFORCE

CAMERON HAS ANNOUNCED its systems solutions offering, CAMFORCE Subsea Processing Systems. It will provide multiphase boosting, separation and other enabling technologies to the emerging subsea processing market. Subsea processing market drivers include longer tie-back distances; demands for improved productivity, recovery and flow assurance; and reduced topside processing requirements.



Weatherford's eProduction Solutions unit releases WellFlo software version 4.0

WEATHERFORD International's production optimization business unit **eProduction Solutions** (eP), has released WellFlo software version 4.0. The well engineering software application was completely redesigned to function more intuitively, provide more powerful fea-

tures, closely match constructed well models to reality, and present a richer graphical user interface. It works with natural flowing well applications, gas and condensate wells, pipeline and surface equipment. It provides modeling, design and analysis for electric submers-

ible pumps (ESP) and gas lift, inflow and outflow performance modeling and other applications. The software was designed to aid petroleum engineers with five basic well completion and production engineering functions: configuration, tuning, analysis, design and output.

What's new at OTC

A plethora of innovation in the form of oilfield tools, equipment and software were launched at the 2007 Offshore Technology Conference, held 30 April to 3 May in Houston. Here is a brief sampling.

Active heave compensators

BOSCH REXROTH HAS introduced a new generation of rotating active heave compensators (AHC), based on secondary technology for the controlled handling of loads 20-100 tonnes. The AHC systems compensate over 90% of the ship's movements. Its secondary drive technology, combined with energy retrieval, storage and recycling, results in very compact systems with significant reduction on installed power. The drive system consists of adjustable axial piston motors, the aggregate, the batteries to store energy, the Motion Reference Unit, and the necessary interfaces.



ConneX Perforating

GEODYNAMICS, SHELL and **QinetiQ** jointly announced a perforating technology, ConneX Perforating, that has the potential to significantly increase the production capability of oil and gas wells, according to GEODynamics president and CEO **David Wesson**.

Upon detonation, this perforation solution creates a secondary reaction within the perforation tunnel. The reaction is formed by use of new liner technology, incorporating a carefully controlled combination of bi-metallic liner material that is pressed under very specific conditions. The reactive properties of the charge develop high lateral pressures within the perforation tunnels, creating a self-cleaning action that results in open, debris-free holes. The ConneX perforator also does not require underbalanced conditions to clean the perf tunnel.

M/D Totco tools

M/D TOTCO, A PRODUCT division of **National Oilwell Varco**, has announced RigMS Asset Tracking and Maintenance Management, which aims to re-invent the way organizations track and manage their assets. Additionally, M/D Totco has announced RigTone Voice over IP, which establishes high-quality and reliable telephone communication for rigs even in the most remote areas.

Finally, it has announced the new RigConnect Self Aligning Satellite Dish Antenna. It is a self-deploying mobile satellite system specifically designed for oilfield harsh environments, including the ability to operate in temperatures as low as -40°F and winds up to 65 mph.

Milestone expandable well bridging gap to single diameter

THE "HOLY GRAIL" of the single-diameter well has come a giant step closer with **Enventure Global Technology's** announcement of successfully expanding 3 successive liners with uniform ID. Using its trademarked "MonoDiameter" technology, Enventure drilled the milestone, which it called a field-appraisal well, in Oklahoma during April. Each of the 3 consecutive liners were expanded to a uniform 10.4-in. ID, the company reported.

REAL-LIFE WELL

"MonoDiameter is no longer a concept," said Enventure senior vice president **Rick Fontova**. "It's a reality."

Enventure played the role of operator, contracting all services, including site preparation, cement, fluids, drilling rig, explained Enventure drilling manager **Jerry Fritsch**. Drilling, he said, proceeded as with as normal well, the goal being to run 3 successive single-diameter liner under a variety of conditions. Although no hydrocarbon-bearing sands were encountered, nor expected, Enventure used a conventional BOP stack with one annular and one double ram. "It was a real-life well," he said.

NO HSE INCIDENTS

He was particularly proud of the operation's HSE record. Not a single safety incident was recorded during the 83-day operation, Mr Fritsch reported. "Safety is a core value at Enventure," he said. "This project, as well as any project at Enventure, would not be a success if it was not done safely... This was an absolute success in that category."

CASE HISTORY

Initially, 20-in. surface and 11 3/4-in. intermediate casing were run, then the 3 successive Enventure liners. Using oil-based

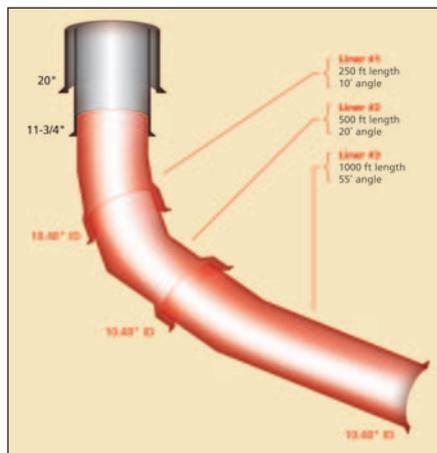


Figure 1: Three trips were required to run each of the 3 liners — 2 to expand the pipe, and one to cut away waste pipe.

mud, each section was drilled, the liner run and expanded in turn. The next section of liner was run through the in-situ expanded liner. The first expanded liner ran 250 ft at a 10° angle; the second, 500 ft at 20°; and the third, 1,000 ft at 55° (Figure 1). Only liner 3 was cemented.

The liners were expanded and joined using metal-to-metal seals, which were pressure tested at 2,300 psi.

EXPANSION TOOLS

Two trips were required to expand the liners, with a third to cut excess casing. A modular arrangement of tools Enventure calls the MonoDiameter Technology Suite is used to expand and trim the liners. Mr Fritsch said that, because the modular tools can be run in a variety of configurations (Figure 2).

The anchor supports the suite load during expansion, using ball bearings to press against the casing, thereby limiting damage to pipe interior. Its function is to anchor the tool to the casing. The extender deploys the expansion tools into the open hole.

The suite's force multiplier is the workhorse for liner expansion. Essentially a stack of piston cylinders, this 42-stroke device provides the force to mechanically expand the casing. "It is the heart and soul of building the bell section," said technology manager **Robert McKee Jr.** The bell section is the flared component that serves as the adapter for the next piece of liner.

The retractable cones perform the actual liner expansion, and can be expanded and retracted from the surface, Mr McKee explained. The 10.95-in. cone is run first, mechanically expanding the bell section. The 10.95-in. cone is then collapsed, and the 10.4-in. cone used to mechanically expand approximately 40 ft of liner, for a total of some 80 ft. The 80-ft section takes about 1 1/2 hours to expand.

The packer assembly is set, sealing the bottom of the lining to expand the remainder of the liner hydraulically using the 10.4-in. cone. At this point, the anchor and force multiplier are no longer used. The expansion rate is 30 ft/min, according to Enventure.

FUTURE

Originally conceived as a drilling enabler for deepwater, where casing telescoping significantly impacts bottomhole liner size, and hence production capacity, Enventure says future applications for MonoDiameter have blossomed. Enventure points to extended-reach drilling as an area of great promise. According to **Mark Holland**, global business development manager, the new technology can extend lateral reach as much as 50% over today's current limits.

With this latest milestone, the industry is that much closer to sipping from the holy grail. ♪

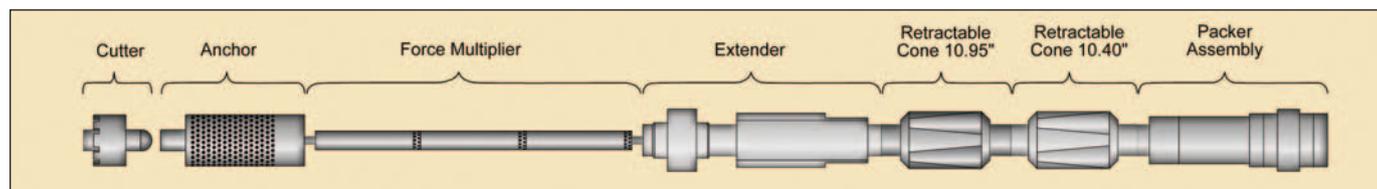


Figure 2: The expansion tool is modular, allowing for a variety of configurations, according Enventure.



Courtesy of Exxon Neftegas Ltd

The Yastreb rig is the world's largest land-based rig. It was designed and built by Parker Drilling and used to drill the Z-11 well offshore eastern Russia.

Exxon Mobil drills world's longest ERD well at 37,016 ft from Sakhalin Island

EXXON MOBIL'S SUBSIDIARY, Exxon Neftegas, has completed drilling of the world's longest measured-depth extended-reach drilling (ERD) well, Z-11. Located on Sakhalin Island offshore eastern Russia, the well achieved a total MD of 37,016 ft (11,282 m).

The multiphase Sakhalin-1 Project includes the Chayvo field, located 5-7 miles (8-11 km) offshore. The Z-11 was drilled to the Chayvo reservoir from the Yastreb rig, the world's largest land-based drilling rig. Parker Drilling designed and built the rig.

The project also deployed Baker Hughes INTEQ's AutoTrak rotary steerable system. The company provided its X-treme motor and GyroTrak

system for orientation in the top section, followed by the AutoTrak G3.0 in the remaining sections. The LithoTrak service was used for petrophysical measurements in the lower section.

Overall, the Chayvo field reached its peak production rate of 250,000 bbls/day in February 2007 after starting up in October 2005. The Z-11 is the 17th ERD producing well to be completed as part of the Sakhalin-1 Project. It was drilled in 61 days, more than 15 days ahead of schedule and below expected cost, with no safety or environmental incidents.

Since the first Sakhalin-1 well was drilled in 2003, the time required to drill these world-class wells has been reduced by more than 50%.

Bisso Marine extracts penetrated jackup leg

BISSO MARINE HAS set a new Gulf of Mexico salvage record by successfully extracting a LeTourneau-designed 84-class leg and can section from a penetrated depth of 82 ft of mud. The work is part of continuing efforts to clean up damage from 2005's

Hurricane Rita. The 130-ft leg and can sections each have 425 tons of steel weight; they were in 230 ft of water and 82 ft of penetration. BARGE 415 is designed with a maximum pull of 3,000 tons over the stern and a side lift capability of 5,000 tons.

1st offshore casing directional drilling done

USING TENARIS CASING, ConocoPhillips has conducted the world's first offshore casing directional drilling project from the Eldfisk Bravo rig. Tenaris supplied 10 3/4-in. and 7 3/4-in. outside-diameter casing with TenarisBlue premium connections for the project. ConocoPhillips has drilled the first of two independent wellbores from one conductor in the casing directional drilling mode.

Baker Oil Tools installs its 100th Mono-Trip CemenThru completion

BAKER OIL TOOLS has successfully completed its 100th Mono-Trip CemenThru completion in the Gulf of Thailand for Chevron. The system was designed to add artificial lift capability and improved safety to cemented monobore wells with life expectancies of 3-5 years. Such short-lived, or "disposable," wells have become the mainstay in the Gulf of Thailand, and are gaining popularity in regions worldwide.

The system's components include the patented CemenThru Side Pocket Mandrel (SPM) and the CementSafe Tubing Retrievable Surface Controlled Subsurface Safety Valve, as well as a hydraulically set liner top packer, a dual wiper plug and a latch collar.

By allowing operators to cement through the completion equipment, the Mono-Trip CemenThru system eliminates the cost and rig time associated with re-completing after cementing and thus reducing overall completion costs. Related HSE concerns are reduced as well. Chevron was able to reduce rig time by 18-24 hours per completion.

RFID pilot completed

MERRICK SYSTEMS AND BJ Services announced a successful completion of a pilot of downhole RFID (radio frequency identification) tags. BJ Services ran the tags in the field, 1,600-plus hours in the hole, 343°F under various types of fluid situations, including acid, without a failure.