Shell’s Brain Child

Perdido: The first smart field in the western hemisphere

Marine Seismic
Enhanced Recovery
Deepwater Advances
Extending Reservoir Life

Worldview
Maersk Oil’s Jakob Thomasen on his company’s history and future in global oil exploration
The E&P editors and staff proudly present the winners of the prestigious 2010 Special Meritorious Awards for Engineering Innovation. The pages that follow spotlight the 10 awards the independent team of judges picked as best of the 2010 crop of entries. The winners reached across a broad range of disciplines and addressed a number of problems that posed roadblocks to efficient operations. The resulting technologies opened new and better avenues to the complicated process of finding and producing hydrocarbons around the world.

This year, some of the brightest minds in the industry from service and operating companies submitted entries representing better technology and new techniques for judges to consider.

The award program honors engineering excellence and achievement in every segment of the upstream petroleum industry. It recognizes new products and technologies that offer innovation in concept, design, and application.

Winning entries represent techniques and technologies that are most likely to solve costly problems and improve exploration, drilling, production, facilities, and IT efficiency and profitability. The people and companies that submitted the entries realize the oil- and gas-producing industry depends on new, better, and constantly changing technological innovation to continue producing low-cost oil and gas from smaller and deeper reservoirs to feed an increasingly energy-thirsty world.

Contest judges chose the winners, but there were no losers in this contest.

The products chosen represented the best of a long list of winners.

The expert panel of judges included engineers and engineering managers from operating and consulting companies worldwide. They applied their expertise in areas in which they specialize. Judges were excluded from categories in which they or their companies had a business interest.

E&P would like to thank these distinguished judges for their efforts in selecting the winners in this year’s competition.

As in past years, E&P will present the 2010 awards at the Offshore Technology Conference in Houston, Texas, on May 3, 2010.

IMPROVED OIL RECOVERY  
DEEPLOOK EM  
WINNER  
SCHLUMBERGER

Crosswell imaging sees between wells

The limitations and pitfalls of well-to-well correlation in divining what fluids or reservoir volumes lie between wells are compelling.

Even advanced wellbore logging and seismic combinations present imperfect solutions.

The DeepLook-EM electromagnetic crosswell reservoir imaging and monitoring system from Schlumberger is the first tool to successfully bridge the interwell information gap. At the reservoir scale, the system is capable of measuring interwell resistivity when the well bores are hundreds, or even thousands, of feet apart. In fields under waterflood, the tool tracks the distribution of injected fluid volumes and the resulting swept zone by measuring resistivity sensitivity to changes in fluid saturation and temperature.

These measurements make it possible to infer structure, temperature distribution, and residual saturation of affected reservoir volumes. Operators can use the system to image and monitor the effects of steam or water saturation changes, thus helping to guide field development and enhance reserves estimates.

DeepLook-EM transmitters are deployed in one well, and receiver arrays are deployed in an adjacent well (or wells). Wells may be open or cased, and interwell gaps as large as 3,280 ft (1,000 m) can be imaged. The magnetic moment produced by the transmitter is 100,000 times greater than a conventional induction tool.

The optimum use of DeepWell-EM is in time-lapse mode to track fluid movement. For example, in a water-alternating-gas injection scheme, operators can assess, over time, water migration through a reservoir; determine the ideal injection profile for increasing oil recovery; and avoid water override. Sweep effectiveness can be assessed in real time and bypassed pay avoided.

The new DeepLook-EM technology has been shown to be highly promising for monitoring sweep efficiency, detecting bypassed pay, and optimizing simulations for improved reservoir management.

Well A is the observation well, well B is the abandoned producing well, and well C is the steam injector. The crosswell survey mapped the steam-affected zone in the interwell space. (Image courtesy of Schlumberger)