

# 2005

## Engineering Innovation

### Judges choose top 16 industry projects

The E&P editors and staff proudly present the winners of the prestigious 2005 Special Meritorious Awards for Engineering Innovation. The pages that follow spotlight the 16 awards the independent team judges picked as best of the 2005 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 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 and production 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-hungry 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 2005 awards at the Offshore Technology Conference in Houston, Texas, May 2. An entry form for the 2006 Special Meritorious Awards for Engineering Innovation contest is available in the magazine's Web site at [www.eandpnet.com](http://www.eandpnet.com). The deadline for entries for 2006 is Dec. 1, 2005.

#### PRODUCTION, SYSTEM: RED EYE WATER-CUT METER

#### WEATHERFORD/ePRODUCTION SOLUTIONS

### Water-cut meter delivers triple value

Weatherford/eProduction Solutions' (eP) 2G water-cut meter is installed in a well's flowline as a part of the Red Eye three-phase metering system. It uses infrared-beam technology to accurately and continually measure the oil/water fraction in produced fluid, providing the operator with valuable real-time readouts.

According to Weatherford/eP, the Red Eye meter is the only system that uses a narrow bandwidth infrared beam to provide a highly accurate water fraction in an oil and water mix. It is based on the principle that oil in a multiphase flow regime attenuates a light beam at a different level than does water. The light is absorbed by the oil, whereas gas and water appear transparent. The 2G system is differentiated in that it is the only system that simultaneously measures multiple infrared wavelengths to monitor water- and oil absorbent

peaks in addition to nullifying scattering effects. The 2G meter ignores salinity changes and is insensitive to free gas.

Boasting accuracy within 0.25% at high water fractions and 1% in low water-cut flow streams, the meter delivers accurate real-time readings across a broad range of water fractions and enables more efficient production management. That makes the 2G particularly suitable in fields with variable water fractions — it can measure all of the wells. Although data can be ported to a field SCADA system, the gauge has an easy-to-read two-line, 16-character fluorescent display. Rigorous flow-loop testing at

Weatherford's eProduction Solutions facility and at independent flow labs has verified the unit's excellent low-end accuracy and revealed its unparalleled insensitivity to free gas entrainment,

according to the company.



*Red Eye water-cut meter for land or offshore applications.*