Australian Coring Innovation Could Save Industry Millions

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A groundbreaking Australian technology could help the world's oil and gas industry save hundreds of hours and millions of dollars that are wasted on inaccurate coring operations and the diverting or redrilling of deep exploration wells, a conference in Darwin heard today.

Speaking at the 2009 Conference of the Australian Petroleum Production and Exploration Association (APPEA), Dr Greg Wheatley, Technology Manager of Perth-based Coretrack Limited, said the Company's Core Level Recorder System (CLRS) will enable petroleum companies to avoid major losses incurred through failed or repeated coring operations when it becomes commercially available later this year.

As the only method for retrieving the large pieces of rock formation necessary for identifying and appraising new oilfields, coring is a vital stage in petroleum exploration – yet it remains susceptible to a variety of errors caused by "core jams" and the loss of "milled" core samples.

The CLRS aims to minimise such incidents by delivering pin-point real-time data on core recovery directly to the surface, enabling drill operators to instantly recognise the signs of jamming – helping them optimise core retrieval, reduce incidents of milling, and, ultimately, avoid the need to divert or redrill wells.

"Although coring is absolutely critical in the appraisal and development of new oil and gas fields, there is a surprisingly broad capacity for error," Dr Wheatley said.

"Coring technology has changed very little down the years, and with the really deep wells being drilled these days and the illusion of elasticity that you receive from a six-kilometre-long pipe, it is hard to know with any great certainty what is happening at the bottom of your well.

"But with our tool, the amount of core captured is communicated, to within an accuracy of 50 millimetres, directly to the rig floor – giving you much greater confidence about what is happening at the end of your drill."

As well as providing "vastly improved" logging data, Dr Wheatley said the CLRS would dramatically reduce the risk of operators mistaking changes in rock formations for core jams – and the ensuing "trip outs", for up to 15 hours, as core barrels are unnecessarily pulled to the surface and replaced.

"The system will also detect the occurrence of a genuine jam and therefore stop core formations being milled – which can lead to operators being forced to spend millions of dollars deviating wells and redoing coring jobs," he said.

Dr Wheatley cited a recent example in which an operator had to drill a second well after many dozens of metres of core was inadvertently milled when jamming was not detected – a mistake that cost the company millions of dollars.

"A recent industry survey by Coretrack showed that core milling occurs in up to 12% of core operations and jamming in an average of 27% of coring activities," he said.

"Of the jobs that are jammed or milled, 42% wind up being repeated – usually at very considerable expense."

Coretrack's technology has attracted growing interest from within the US$1.1 billion petroleum coring market, with tests of a prototype successfully conducted on a variety of onshore and offshore wells in Australia, Oman and Saudi Arabia.

Dr Wheatley said the need for precise coring measurements had grown significantly in recent years, with the

challenges posed by deeper offshore wells, an industry-wide decline in experienced coring personnel, and growing pressure from regulators and investors for more efficient and accurate coring operations.

“I am confident that all of you will want to use our tool in your next well,” he told a large gathering of petroleum industry leaders at the end of an address entitled Measurement While Coring: Measurement of Core Acquisition in Real Time.

Coretrack announced in April that it has been in discussions with several major petroleum companies, including Chevron, Halliburton and Baker-Hughes/Inteq, over the future use of the CLRS in their drilling wells or core assemblies.

The potential of the internationally patented technology has also been recognised in Australia, with a A$1.35 million grant from the Commonwealth Government and the 2007 Inventor of the Year (Development Category) award from the Western Australian Government.
