Riserless Mud Recovery System
First use on Crux-2 Well

John Ah-Cann
Riserless Mud Recovery System

Introduction:

• A riserless mud recovery (RMR) system used to drill 24” surface hole on Nexus Crux-2 well to 1166m in 162m water depth.
• This is only the second application of the RMR system in Australia.
• Unlikely that the hole could have been drilled to the same depth without the RMR
Crux-2 Background:

Crux-2 well being drilled in Browse Basin AC/P23 ~ 700km west of Darwin in the Timor Sea.

Crux-2 is second well in field; Crux-1 drilled in 2000 and tested 65.5 MMscfd and 1921 bbl/d condensate.
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What is it? (System Description):

RMR consists of:
- Suction Module (SMO)
- Subsea Pump Module
- Suction Hose and jumper cable
- Mud return hose and umbilical
- Umbilical winch package
- Control unit
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What is it? (System Description):

- Mud can be used instead of “pump & dump”
- Benefits of riserless drilling retained
- A dual hydrostatic gradient can be employed
- Better hole cleaning, wellbore stability, reduced risk of lost circulation, potential to eliminate casing string, reduced risk of shallow hazards, reduced discharge to sea
Riserless Mud Recovery System
System Description – Suction Module
Riserless Mud Recovery System
System Description – Subsea Pump Module
Riserless Mud Recovery System
System Description – Winch Package
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System Description - Hose

Suction Hose between SMO and Subsea Pump
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Execution – how did it perform?

• Logistical and commissioning problems prevented the RMR system being available for the first half of the 24” surface hole
• Prior to commissioning the RMR system, 24” hole was drilled to 630m with seawater and viscous sweeps
• Drill string had become stuck on several occasions
• Hole was not being adequately cleaned
• Hole was being drilled using “doubles”
• Consuming a lot of mud chemicals trying to clean the hole with sweeps
• Unlikely that planned hole section of 1050m would be reached
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Execution – how did it perform?

- Once RMR system operational, the hole was displaced to gel mud
- Initially no mud returns – had to pick up and stage displacement due to the amount of cuttings in the hole
- Once displacement complete, the hole unloaded with massive amounts of cuttings over the shakers
- Over 200m of fill was found on bottom of the hole when staging back to bottom
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Execution – how did it perform?

• The rest of the surface hole was drilled trouble free – no tight hole, no stuck pipe, no fill on connections
• The RMR represents a breakthrough in the way wells can be planned and drilled – not only in the Timor Sea where lost returns are prevalent, but potentially in all areas where riserless drilling is employed
• Next Crux well could reduce one casing string
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The Future:

- RMR is continuing to be developed:
- Over 15 wells have been drilled in the Caspian Sea with RMR
- A system has been qualified to 450m water depth in North Sea
- A JIP aims to develop a system to run in 5,000 ft water depth by end of 2007
- Further information – contact John Dale: jda@agr.no or www.agr.no