

Distribution

1. John Guide, Deepwater Horizon Wells Team Leader
2. Ian Little, Wells Manager
3. Jonathan Sprague, GoM Wells Engineering Authority
4. Neil Cramond, GoM Marine Authority
5. Central File EPT Drilling, Sunbury

**Deepwater Horizon
Follow Up Rig Audit, Marine Assurance Audit
and Out of Service Period
September 2009**

Prepared by

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Kevan Davies,
Rig Auditor
24 September 2009

Approved by

.....
Norman Wong,
Manager, Specialist Technical Support - Rig Audit
30 September 2009

[APG]

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Executive Summary

A rig and marine assurance audit was performed on the semi submersible drilling rig Deepwater Horizon. The rig was audited on location at the Kofisk prospect at Mississippi Canyon 7-27. The audit was undertaken by a four man team from 13 to 17 September 2009.

The rig commenced the out of service period on 31 August 2009 to undertake Underwater In Lieu of Dry-dock (UWILD) inspection, DP system upgrades, refurbishment of the forward and aft PRS and replacement of the iron roughneck.

Prior to recommencing operations the rig was subject to a follow up rig and marine assurance audit, and key function testing such as black out recovery, customer acceptance trials concerning DP control system upgrades. Planned checks to verify the functionality of the drill floor anti collision system and reliability of the iron roughneck and PRS could not be performed as on departure from the rig issues with this equipment were still being addressed.

The audit made a number of findings, based on the nature of these findings, i.e. rig floor non operational, and the potential adverse effect on rig emergency preparedness and watertight integrity regarding the marine related issues a recommendation was made to the Wells Team to suspend operations until many have been satisfactorily addressed.

Findings of particular note were the following:

- Closing out of the last audit recommendations had no apparent verification by BP. Consequently a number of the recommendations that Transocean had indicated as closed out had either deteriorated again or not been suitably addressed in the first instance.
- Control of work issues identified specifically with isolation permit process and integrity of

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- Top drive guard is not fitted with a safety sling, not only is this an NOV requirement but also a lesson learned from industry incidents, including one on this rig, where the guard had been knocked off due to equipment clash.

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accordance with RMS II requirements. According to maintenance history the choke and kill manifold has not been maintained in accordance with former Transocean maintenance requirements or indeed API recommended practices. Choke manifold valves having been replaced on the basis of failure only, periodic internal choke manifold and valve inspection having not been performed.

Recent third party inspection reports for riser bolts and inserts again were of a poor standard, serial numbers for traceability purposes had not been recorded. The rig now has an onboard riser bolt torque tool calibration unit, but calibration certification for this unit could not be produced. Based on Vetco recommendations riser bolt torque will be reduced from 25,500 ft-lb to 19,250 ft-lb during

Whilst it is appreciated that attempts are being made to improve quality of maintenance reporting based on observations during the audit period further effort is still required. All too frequently maintenance history was substandard with missing information and poor quality reports that lacked sufficient detail to convince the reader that the task had actually been performed in accordance with the procedure.

adoption maintenance scheduling has not been well thought out, in many instances and for each discipline some months has more maintenance hours scheduled than available man hours; this will clearly result in increases in overdue maintenance.

A review of the RMS II maintenance management system indicated that there were significant overdue planned maintenance routines in excess of thirty days; these totalled 390 routines which corresponded to 3545 man hours. Many of the jobs were high priority designation and it is unclear why Transocean did not plan some of these for the out of service period.

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Planned maintenance was inspected for the two deck cranes, knuckle boom crane and riser gantry crane. All scheduled work appeared to be up to date, with no current outstanding corrective maintenance apparent or implied. Additionally deck crane pedestal NDT inspections and boom segment bolts replacements were found in date.

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