From: Guide, John
Sent: Thu Sep 17 12:23:35 2009
To: Little, Ian (Ian.Little@bp.com)
Subject: FW: Deepwater Horizon Rig Audit
Importance: Normal

FYI

From: Davies, Kevan P
Sent: Wednesday, September 16, 2009 10:07 PM
To: Guide, John; Cocales, Brett W
Cc: Wong, Norman (SUN); Lirette, Nicholas J; Sepulvado, Murry R; Reed, James T
Subject: Deepwater Horizon Rig Audit

John,

The audit team is working on completing the Follow up Audit Terms of Reference and hope to be finished by tomorrow morning. The exception being verification testing of the refurbished drill floor equipment, i.e. the forward and aft PRSs and the iron roughneck which currently have unresolved issues.

The 4 man audit team are tentatively booked to leave the rig tomorrow on the mid afternoon chopper flight and plan to travel back to the UK on Friday. I can mobilise 1x man , as requested by Brett Cocales, who is US based and can be on the rig for Saturday 19 September. I will discuss further with you in the morning.

While recognising that our audit is still ongoing here are the issues identified to date and as communicated by myself during the joint BP / Transocean teleconference of this evening:

Drill Floor - Issues to be resolved prior to commencing drilling operations

- The new iron roughneck although mechanically complete cannot operate within the confines of the drill floor anti collision system (ACS), NOV, Hitec and Transocean are troubleshooting the issue. Remote access using the Hawk system to allow remote diagnostics was non operational earlier this evening, but current status right now is not known. Until this issue is resolved the ACS will not be fully operational as originally intended. The old iron roughneck as you are aware was previously operating in ACS override.
- During the last well the linear actuator was renewed on the aft PRS, a few days later problems were experienced with the lower arm retract function. The lower arm would not stay fully retracted, on release of the joystick the arm extends out by approximately 8" putting the aft PRS into ACS initiated stop. A risk assessment was undertaken to allow continued use of the PRS, this was achieved by operators holding the joystick in the retract position when slewing and traversing the PRS. It was thought that this was due to the wear in the various pins and bushes and once replaced the problem would go away. The problem is still prevalent and constantly under review by Transocean. A new stabiliser arm is being sourced as differences in the tolerance between the primary arm and stabiliser arm have been indentified between the forward and aft PRS units. The forward PRS has a larger clearance.

Drill Floor Issues - Transocean to communicate forward plan.

- While the aft PRS which undertakes approximately 80% of the work has been fully re-bushed and pinned and new rollers installed the intended scope of work was not completed on the forward PRS: no pins, bushes or rollers were replaced. The tailing arm on both forward and aft PRSs have however been refurbished.
- The rotary table has been non operational for approximately 4 years - evidently waiting on spares -

Planned Maintenance

- Overdue maintenance in excess of 30days currently totals 390 jobs and amounts to 3545 man hours. -_ **Transocean to communicate forward plan**
- Overdue maintenance includes the 365 day drawworks PM which requires disassembly and inspection of the brake calipers pins and arms and NDT checks of all load bearing areas. The maintenance routine also requires checks for the brake caliper spring packs and checking of the bearing clearances. The PM was last conducted during February 2008 and has been due since February 2009. Transocean initially stated that they have plans to change this PM to 10 year frequency and so stated it was not required to be completed, despite being on the overdue maintenance list. Later Transocean stated that they were looking at changing the PM frequency to 5 years. **Maintenance routine to be completed prior to commencing drilling operations**

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- Main engines #1 and #4 are overdue 24,000hour overhauls as of may and June 2009 respectively -_ **Transocean to communicate forward plan**

Marine Assurance - To be completed prior to commencing operations

- During testing port side aft dampers failed to operate (close). Implications are that in the event of a flooding incident the rig would have been unable to secure the watertight integrity of compartments due to cross flooding or down flooding. Die to failed test no other quadrants were tested - Transocean to communicate operational status.
- PCU 18 has suffered a failed processor module. This has impacted on the control and functionality of Ballast pump #4, and the starboard aft quadrant draft sensor, ballast tank valves and bilges valves. The implication is that to effect valve operation the emergency hand pump needs to be rigged and used locally in the pumproom.
- Two out of four (port forward and starboard aft pumprooms) emergency ballast suction check valve integrity checks failed. I.e. the valves leaked back into the bilges.
- Of the three electric bilge pumps tested all 3 failed to reduce the bilges, the self priming units being defective. The rig relies on the air operated diaphragm (Wilden) pumps to currently reduce bilges.
- The port aft ballast/bilge/watertight damper hydraulic power unit (HPU) has 4 pumps, all are in manual control and 3 are running continuously potentially indicating that; there is a system leak, cut in/out pressure switches are non operational, the pumps are worn and cannot make pressure or the pressure relief valve is passing.
- Seawater cooling Pumps: Two pumps identified as defective in January 2008 were found in the same condition, it was reported that one of these had been repaired but had recently failed again. Of the eight seawater cooling pumps just one was defect free. Pump status is as follows:

  Pump #1 No problems - operational
  Pump #2 Sheared shaft - cannot be run - reported in January 2008
  Pump #3 Top seal leaking - can be run but leaks
  Pump #4 Motor burnt out - cannot be run
  Pump #5 Pump casing cracked - reported in January 2008
  Pump #6 Pump washed out - cannot be run
  Pump #7 Bottom seal leaking - can be run but leaks
  Pump #8 Motor over current problems - cannot be run

  At least one seawater cooling pump in each quadrant to be defect free and fully operational

Marine Assurance - Transocean to submit a satisfactory resolution plan and timeline

- Pontoon and column Watertight Door testing: Four doors cannot be operated remotely and require manual emergency hand pump to open or close. (**All doors are currently secured in the closed position**).
- Random watertight doors were checked to ensure that back up accumulators were functional. Of the six doors tested two failed. Other doors should be checked to ensure that emergency back up operation is available
- The watertight door local control panels were opened on a random sample basis. The dead man springs for the operation levers were in some cases deformed indicating that positive return to the neutral operating position would not be satisfied. This in essence means that on releasing the operating lever the door can stroke back from either the closed or open position and start moving, presenting an obvious risk to personnel. This actually occurred on at least eight watertight doors during function testing.
- Main engine #1 is currently non operational waiting on fuel oil pump.
- Thruster #2 is currently non operational - has VFD drive current imbalance issues when operating at above 50% speed
- Fire dampers: Random fire dampers were tested: 6 out of 26 failed to close.
- AFFF helideck foam fire fighting system: last foam sample test failed so replenishment required.

Regards

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