

Distribution

1. Dave Sims, Wells Programme Manager
2. John Guide, Operations Superintendent
3. Central File EPTG Drilling, Sunbury

Deepwater Horizon Technical Rig Audit January 2008

Prepared by

.....
Kevan Davies, Rig Auditor
20 January 2008

Approved by

.....
Norman Wong, Head of Rig Audit
23 January 2008

Introduction

Dave Sims, Wells Program Manager, requested the rig audit group to attend the Deepwater Horizon in the Kodiak prospect, Gulf of Mexico. The purpose of the visit was to perform a rig audit and follow up to the marine assurance audit. The work was undertaken between 15 and 19 January 2008, with a four man team.

Kevan Davies	Team Leader
Billy Hutchison	Drilling
Barry Hayward	Technical and Marine
Ross Spence	Mechanical handling

This report incorporates the audit observations and recommendations and will be placed on the Rig Audit Share Point site at <https://epti.bpglobal.com/sites/RigAudit/default.aspx>. The wells team is responsible for completing the Audit Report Action Sheet (ARAS) and placing the updated version on the share point site. Further advice on the functioning of the share point site can be obtained from the author of this report.

The Wells Team must review the ARAS to accept, change or reject the recommendations. If a recommendation is not accepted the reason for the decision should be documented and filed. It is the view of the Rig Audit Group that implementation of all recommendations will improve safety/environmental performance, comply with industry standards and best practice, and enhance operational integrity.

Summary of Observations

Previous Audit Status

Overall satisfactory progress has been made with closing out audit actions from the 2005 technical audit. One area where improvement has not been seen was the derrick were similar findings concerning trash and secondary retention was observed. Close out of the marine assurance audit recommendations has generally been good; clearly a great deal of effort and focus has been made here. Although fourteen recommendations were rejected just seven remain outstanding and these require shore side support. An update of the marine assurance audit ARAS is included in this report.

Safety

The rig has an admirable safety record having gone 1725 days without a Lost Time Incident; this achievement is considered exemplary considering that the rig has been continually operational during this period. One minor first aid case was recorded during the audit period. A person sustained a small cut to the face during removal of a protector from a joint of casing. No unsafe acts or conditions were observed by the audit team. High standards of safety leadership were demonstrated by the Transocean and BP teams and satisfactory application of the various Transocean safety systems including; THINK, START, permit to work and Task Specific Think Procedures (TSTP) was noted. The pre-tour meetings are fully utilised to cover safety and ongoing operations and a consistent message is sent out, to use the safety tools and stop the job if the plan changes

or any unsafe situation arises. A good team spirit was witnessed with all departments working with well together.

Safety opportunities for improvement do exist, whereby both BP and Transocean safety personnel could do with being more visible at the worksite and attend some of the THINK plans to quality and offer coaching, if required.

Training and Competency

A detailed training matrix was in place for all the crew members. Crew training was 95% complete against the training matrix. Maintenance and marine department personnel have generally been stable; the drilling department has seen some changes. Of the four Driller's three have less than eighteen months experience in position but most were Horizon internal promotions. Turn over of Roustabouts and Roughnecks has been relatively high but this has more to do with the current status of the industry. The majority of senior marine personnel are experienced; with only two of the DP operators, out of eight; having less than one years experience on the rig.

Marine Assurance

Class and Statutory surveys are up to date, with the next SPS due in February 2011. There are no class recommendations outstanding and the only statutory deficiencies open relate to IAPP certification, regarding exhaust gas emissions for the main engines and deck crane engines, and the installation of a voyage data recorder (VDR). Thruster #5 VFD inverter was isolated during the audit, whilst upgrade work was undertaken. Most of the other drives have already been installed with the upgraded components, leaving only thrusters #1 and #4 to be completed in the near future.

With two engines unavailable due to maintenance, one planned and one unplanned, available spinning reserve was decreased. Consequently drilling operations were stopped whilst a weather front with winds of 40 to 50 knots proceeded through the field, so that power could be diverted to the thrusters.

The rig's seawater and ballast systems are mostly steel piping with non-ferrous valves. This has the potential to induce galvanic corrosion in the pipe work, usually first observed at points of non-laminar flow and areas of discontinuity such as flange welds. Recent repairs to the pipe work in the columns and pump rooms would indicate that further repairs will be required.

Non-Productive Time

The majority of non-productive time (NPT) during the past year can be attributed to marine riser tensioner leaks. Three tensioners had leaking seals during the audit period. Other notable NPT was due to a clash between the top drive and RBS, additional anti-collision system tests have been instigated following this. The maintenance department suggested that the iron roughneck was also responsible for significant maintenance repair activity but not so extensive that down time is accrued.

Operations

During the audit BOP testing, drilling, offline pipe handling and boat operations were observed. Communication between the supervisors and crew was two way and the Drillers were well supported by the Toolpushers at the worksite. Drill floor operations observed were performed safely and efficiently and Driller's demonstrated satisfactory competence. The operational performance of the rig is recognised by the BP Wells Team as setting the standard for our GOM operations.

Drilling Equipment

Primary drilling hoisting / rotating equipment has for the most part been renewed or refurbished during the last year. A new crown block and refurbished travelling block were installed during October 2007, the top drive was replaced with an exchange unit during May 2007, the drawworks was subject to National Oilwell Varco (NOV) inspection during June 2006 when all brake calipers were rebuilt and main bearings were checked. In addition, replacement of all drawworks motors, commenced in June 2006, was completed during May 2007. For the most part, maintenance history recorded in Empac for the above work did not meet our expectations nor Transocean guidelines and a number of vendor reports proved difficult to locate. Documentation for the five yearly overhaul of the deadline anchor could not be provided and coupled with poor maintenance history notes actual work performed on this unit could not be established.

NOV performed five year inspection of the PRS during August 2006; the upper arm of the aft PRS was again inspected by NOV during May 2007 due to problems with proximity sensor and target clashing. Although significant recommendations were made during both of these inspections documentation to indicate that they had been closed out could not be provided.

The iron roughneck has been budgeted for total refurbishment during 2008. Although the vast majority of major components will be new the existing frame will be retained. Potential problems may arise if excessive wear is found in way of the bushing inserts as the frame will require re-machining.

Two check sheets have been configured for testing the anti-collision system (ACS). One set of checks verifies operation of just a few of the potential clash scenarios and is undertaken prior to each trip. This mini test was implemented following collision of the top drive and RBS. The second set of checks is more comprehensive and covers all potential clash scenarios, but not equipment interlocks. Although the comprehensive check was last completed during September 2007 it is not undertaken on a regular scheduled basis. As reported during our audit from 2005 the iron roughneck and casing tong are released/ignore from ACS. Transocean mitigation for this was cited that this equipment is operated in local. Technically the iron roughneck keeps losing counts and hence positional data during traverse to well centre and hence gives intermittent ACS alarms while the Weatherford/Hitec casing tong software interface is not compatible.

The auxiliary drawworks is typically used for running casing strings on arrival at a new location. Some components on this unit have been replaced to address fabric

maintenance issues. Brake inspections performed during July 2007 were not completed in accordance with the maintenance procedures, some critical steps, pressure balance check; to verify condition of the caliper springs and was omitted hence braking efficiency cannot be verified.

According to maintenance history critical drilling instrumentation, other than subsea instrumentation, has not been calibrated since 2005. It would appear that although there are three drilling instrumentation assets no maintenance procedures have been scheduled against them.

Derrick Inspection

A thorough derrick inspection was performed to check for potential dropped objects, housekeeping and general derrick condition. Based on our inspection it is evident that greater vigilance is required during the weekly DROPS inspections as items of loose trash, fixings etc. were recovered, and some equipment, particularly at the crown and a number of CCTV cameras, were not provided with secondary retention. Sheaves, shackles and pad eyes installed at the crown were not marked with the current lifting gear colour code or safe working load in accordance with Transocean policy. Although a yearly derrick inspection maintenance routine is scheduled the 20% bolt check in accordance with the procedure were not apparent, no bolts had been marked. Although to some extent this was addressed during the five yearly third party derrick inspection, performed during June 2006, when all bolts were inspected it does not detract from the fact that the yearly routine is being signed off with incomplete steps. Additionally steps from the five yearly derrick inspection would also appear to have been missed as MPI records for the derrick feet could not be provided as per the maintenance procedure.

Derrick DROPS inspections are scheduled in Empac. The inspection check sheets are considered very basic and do not include detailed inspection criteria regarding equipment and fixtures located at each level of the derrick.

Mud System

Significant mud pump failures have occurred due to crankshaft or main bearing cap stud failures of each mud pump. Subsequent pump overhauls were well documented indicating that new bearings etc. were used; the last rebuild was undertaken during December 2006. Different style crankshafts have been installed in various pumps, while some have original forged type crankshafts others have new type machined crankshafts one of which runs different bearings from original. Latest bearing clearance readings were all found to be in tolerance with the manufacturers recommendations.

Subsea

During the audit a full BOP test was completed successfully with no failed tests. There are various items of equipment requiring repair or replacement when operations allow. Three of the six riser tensioners have leaks; two at the rod end seals and one at the blind end seal. A reconditioned riser tensioner, due late January, will be used to replace tensioner #5 when operations permit. There is also one new tensioner scheduled for June delivery, the plan is to rotate the tensioners out for repair and re-certification. The BOP hot line

has a pencil sized hole at 336 feet below the water line. It is planned to repair this when the BOP is next pulled to surface. The last five yearly inspections of the high pressure choke and kill hoses comprised of visual onboard inspection only; this is significantly different to the requirements of Transocean's five year maintenance procedure. A new kill hose has been on order since December 2006 and has a quoted delivery of 65 weeks, when this arrives a rolling inspection programme is planned. Certification or other documentary evidence to demonstrate that the BOP has been subject to five year recertification inspection could not be produced.

During the audit the HP air compressors were observed to run continuously, this can be attributed to the seal leaks on the riser tensioners and the associated increase in air consumption. It is intended to install a third HP air compressor in 2008 to improve system redundancy and better facilitate maintenance. At the back end of 2007 a rental air compressor was required to meet demand, again due to riser tensioner leaks.

Deck Cranes

The general condition and housekeeping of the Leibherr deck cranes was satisfactory, no obvious significant defects were noted. Maintenance schedules are generally adhered to, repairs or remedial work is carried out in a timely manner. All operational limits and safety devices were tested and fully functional. Both cranes suffer from a number of small oil and hydraulic fluid leaks, which accumulate in the area directly below the prime mover / gearbox near the electrical slip ring. This problem has been evident for some time and should be rectified in the near future to avoid a potential fire risk. Both main and whip hoist wires on the starboard crane have exceeded Transocean's two yearly replacement schedule for wire rope; new replacement ropes are on order. Deck cranes were subject to five yearly load tests in January 2006. From available onboard documentation it was not clear if all dry and wet drive splines, in relation to crane hoist winches and slew machinery, have been removed and checked, as per the annual and two yearly inspection criteria set out in the Transocean maintenance routines. The overdue overhaul of the port crane engine has now been scheduled and is imminent.

Deck handling of loads by deck crew was observed and satisfactory practices were demonstrated, with good communication between banksman and crane operator. Prior to all crane lifting operations, a THINK assessment is completed with all relevant personnel in attendance, with the relevant pre-prepared JSA reviewed.

Personnel transfers are performed using both deck cranes and two Billy Pugh man-riding baskets. Both baskets were relatively new and in acceptable condition. Two spare new baskets were also available on the rig, and any old units discarded at the expiry of their certification. Crane operators should become accustomed to using the dynamic load function of the cranes for any sea lifting duties, as they currently only utilise the static load function. This is general 'best practice' and should be adopted as such. Man-riding procedures were satisfactory and covered all requirements of the equipment and personnel and included a comprehensive risk assessment of the task

All persons observed displayed a good working knowledge of their discipline, be this crane operator or deck crew. A number of deck crew are new to the rig, but were observed working safely. Crane operators are knowledgeable regarding crane operating procedures and maintenance schedules. No formal training structure is in place for potential new crane operators; instead those that show aptitude are guided through an informal OJT program and mentored by experienced personnel.

Pipe Handler Crane

The hydraulic knuckle boom type pipe handler crane was found in satisfactory condition with no outstanding maintenance. All operational limits and safety devices were fully functional including the slew limits. The five yearly load test was completed in December 2007.

Riser Gantry Crane

The riser gantry crane was found operational with no outstanding maintenance. The travel of all motions and a function test of operational limits proved successful with no faults identified. A highlighted operational problem causing the crane to 'crab' was identified as being due to operator control, where some of the more inexperienced operators would not fully engage the directional control. Instruction has now been provided in the correct operation of this function to prevent future problems. Load test certification was dated December 2007.

BOP Handling Crane

The BOP handling crane features two main and two auxiliary hoist units, load test certification was dated December 2007. Function testing of the crane was satisfactory and revealed no obvious defects. Due to lack of safe access and fall arrest system it was not possible to inspect the top of the crane. This matter was brought to the attention of the Subsea Engineer and RSTC.

Utility and Man-Riding Winches

The emergency stop function on two of the four man riding winches failed to operate when tested. Additionally procedures are not posted for emergency rescue in the event of air supply loss, those operators questioned were unsure as to the correct method for operating the manual load lowering function. The majority of utility and man riding winches have common problems relating to poor rope spooling and general condition.

Rigging Accessories

The majority of rigging items and accessories are in acceptable condition and display the correct colour code. However, an inspection around the rig showed up a number of non-conformances; personnel harnesses in poor condition and left on the floor, rigging items not indicating the correct colour code, miscellaneous rigging items with no clearly identifiable markings. Part of the problem may lie in the lack of a single centralised and controlled rigging store. Instead, various items are stored in different locations throughout the rig. This means the Deck Foreman has no formal method of locating or controlling this equipment. A number of slings are also stored outside on the deck. This is unsatisfactory and will lead to premature deterioration of slings.

Fall-Arrest Systems

Both deck cranes feature fall-arrest systems to allow access along the boom and up onto the "A" frame. The boom walkway systems did not use the correct fastener device, and have not been inspected in a number of years. Due to the high potential for a slip or fall in this area (there is no guard rail, and the starboard walkway is over the side of the rig) these systems should be inspected on a regular basis. The various ladder fall-arrest systems located through out the rig also appear not to have been inspected in some time. Various systems are displaying degrees of deterioration. There is no formal inspection and maintenance process onboard the rig to maintain these systems, and no list of different ladder installations could be produced.

Power System

Presently only four of the six Wartsila main diesel generator sets are serviceable. Alternator #1 has a leaking heat exchanger (the previously repaired unit lasted only a few days prior to failure) and both turbo charger rotors from engine #5 are ashore for balancing and servicing. There is no major engine maintenance planned for 2008 but turbo charger overhauls for engines #3 and #6 are budgeted. Within the Transocean fleet, the cylinder head overhaul period has been extended to 42000 hours for the Wartsila type 18V32 engines. On the Discoverer Enterprise drill ship, which has the same type of engines, the engine running hours have now reached between 35-40,000 hours and recent overhauls of the fuel injection pumps have indicated wear on the pump barrels and plungers. This has resulted in a major overhaul program for this equipment. It should be considered that the same wear can be expected on this rig.

Due to IAPP engine exhaust gas emission requirements; parts have been received for the change out of the present none emission compliant fuel injector nozzles. To date the injectors on engines #1 and #5 have been completed.

The rig is provided with a single UPS for drilling systems. To provide some redundancy and replace aging equipment Transocean are planning to install dual redundant UPS'.

Significant downtime was experienced during 2006 due to SIMATIC S7-400 back plane failure for the drilling control interface. The problem was traced to an RTD failure in the top drive blower motor which fed excessive voltage into the back plane. Following communication with the manufacturer the top drive motors' RTDs have been disconnected to prevent further problems. Based on the past failure and the realisation that the current drilling control interface configuration is a single point failure it is intended to install a redundant SIMATIC S7-400, planned for 2009.

Maintenance Management

EMPAC maintenance management system was rigorously interrogated with focus on maintenance of the safety critical equipment and systems. The size of the maintenance crew is reasonable considering the rig size and the extent of equipment, in general staffing of maintenance positions has been static with minimal changes. Overdue critical maintenance for most disciplines was considered acceptable; however the 212 days

overdue yearly drawworks NDT inspection was excessive whilst the subsea department has significant overdue critical maintenance, some by as much as one year.

The maintenance system is maintained on the rig server and regularly backed up by way of automatic replication. It is planned to renew the rig server in the near future, this will obviously require Empac to be shut down for a few days.

Maintenance procedures were generally considered fit for purpose and rig specific although some deficiencies were identified. Despite some improvements regarding completion of maintenance notes significant improvement for many disciplines is still required. All too frequently maintenance history notes do not indicate the extent of the work performed or record readings requested in the maintenance procedure and as such they are all too frequently inconclusive.

Although raised during previous audits there is still a tendency to close out maintenance routines even though not all tasks or sometimes no tasks have been completed. Ongoing operations are sometimes quoted as the reason for this but in most cases it comes down to not completing all maintenance procedure tasks. Critical checks and inspections are consequently being missed.

Whilst planned maintenance is carried out on the operational and safety critical equipment, other equipment such as the electrical AC motors receive only minimal running maintenance and are generally left to run to failure.

Based on overdue subsea maintenance and planned rig projects for 2008 long term maintenance planning is one area that would benefit the operation. Maintenance look ahead is only currently for the coming week but sometimes stretched to one month in advance preceding a rig move or operator six hour maintenance window. This ideally needs to be expanded to cover the next six months of operations so that maintenance can be included in the wells programme and relevant parts can be ordered on time. With proper maintenance planning and application of Empac there should be no requirement to close out maintenance routines without first performing all tasks. Although this was recommended during the marine assurance audit, May 2007, the recommendation was rejected and is considered short sighted.

The system to handle safety alerts and technical bulletins is managed and initiated by Transocean from Houston, who raise corporate work orders, and works effectively on the Horizon.

Oil analysis results have indicated various degrees of contamination and water ingress in crane winches, thruster gearboxes, drawworks hydraulics and the main HPU. While oils have generally been changed or filtering has been increased vigilance should be exercised during review of oil analysis results to ensure common trends, that may indicate component failure or deterioration, are identified prior to equipment failure.

Software Management

Review of software management initially indicated that software was not well managed. Latest version back up files could not be demonstrated for drilling systems and the software log could not be located. After some time spent searching a software log was located, this was dated November 2006 and did not reflect recent software changes to the drilling system. Transocean circulated an Advisory Notice in January 2007 which gave clear instruction regarding software management. This was brought to the attention of onboard personnel and compliance with the advisory was commenced during the audit period. Latest drilling software was downloaded and backed up but an audit of other software to verify latest versions are available remains outstanding. Spare flashcards with backup ghost images were located in applicable drilling PLC cabinets for ease of location and replacement should the need arise. Recent software upgrades have included elevator joystick actuation open/close while future software updates include upgrade of the Simrad DP control system, planned for 2008.

The drilling control system, V-ICIS, uses both Siemens SIMATIC 5 and SIMATIC 7 programmable logic controllers (PLC). Siemens has phased out the SIMATIC 5 product range, which is used on the PRS and iron roughneck.

Warehouse

The rig currently carries over \$3,317,809 of spare parts and stores, with \$338,568 of open requisitions items, which have been approved for purchasing as per 17 January 2008. Many critical equipment spares were available on the rig, which include spare top drive and iron roughneck service loops, engine governor, spare annular packer and main AC drilling motor being available.

The store rooms were found to be tidy and spares were binned and tagged. The rubber goods store was air conditioned and darkened, but spot checks of the OEM sealed bagged rubber goods indicated that overdue shelf life material was still in stock.

Audit Report Action Sheet (ARAS)

The observations and recommendations are laid out in tabular format that allows tracking of audit recommendations. The first digit in the numbering system indicates the criticality and by reflection of the criticality, timing for reaction to the findings.

Class 1	These items that do not comply with BP policies or Standards
Class 2	These items are outside API, legislation, Rig Owner policies, have high safety or environmental impact potential.
Class 3	These are items that one would expect to find in place from a combination of competent drilling contractor and competent operator.
Class 4	These are items that can be used by the drilling contractor and/or BP to build on the project, though they are not considered as essential.

The second digit in the numbering system indicates the functional area the issue is based within.

1. Health, Safety and Safety Management¹
2. Drilling and Well Control
3. Technical Services
4. Marine
5. Environmental
6. Mechanical Handling

The final digit is the recognition number for that particular section bearing in mind the items are not set out by priority.

Audit Team Advised Completion is based on what was understood as the criticality of the issue in relation to project timing.

The Wells Team must review the ARAS to accept, change or reject the recommendations. If a recommendation is not accepted the reason for the decision should be documented and filed. It is the view of the Rig Audit Group that implementation of all recommendations will improve safety/environmental performance, comply with industry standards and best practice, and enhance operational integrity.

¹ There is no 3.1 Classification

AUDIT REPORT ACTION SHEET

RIG TYPE: DP Semi-Submersible

RIG NAME: Deepwater Horizon

DATES OF AUDIT: 15 - 19 January 2008

RIG STATUS: Drilling Operations

REF	OBSERVATION	RECOMMENDATION	AUDIT TEAM ADVISED COMPLETION	ASSET ACCEPTANCE OR CHANGE	ACTUAL COMPLETION DATE	SIGNED OFF BY
<i>1.1</i>	<i>Health, Safety and Safety Management</i>	<i>These items do not comply with BP Policies or Standards</i>				
1.1.1	The mixing of hazardous mud mix chemicals is taking place using the mud mix hopper on the starboard side of the riser storage deck. There is no eye wash station, emergency shower or PPE locker located here.	Install an emergency shower, eye wash station and PPE lock at the mud mixing area located on the starboard side of the riser storage area. BP Drilling and Well Operations Policy	Prior to mixing hazardous chemicals.			
1.1.2	The Ladsafe and Latchways installed along the deck cranes boom walkways and various ladder access points have not been inspected or tested in the past two years. This is evident in the poor condition of some of these systems.	Have competent third party inspect and repair / recertify all ladder and walkway fall-arrest systems to meet required manufacturers standards. BP Golden Rules of Safety	Within three months			

AUDIT REPORT ACTION SHEET

RIG TYPE: DP Semi-Submersible

RIG NAME: Deepwater Horizon

DATES OF AUDIT: 15 - 19 January 2008

RIG STATUS: Drilling Operations

REF	OBSERVATION	RECOMMENDATION	AUDIT TEAM ADVISED COMPLETION	ASSET ACCEPTANCE OR CHANGE	ACTUAL COMPLETION DATE	SIGNED OFF BY
1.2	<i>Drilling and Well Control</i>	<i>These items do not comply with BP Policies or Standards</i>				
1.2.1	No inspection reports and certification could be produced for the high pressure chocks currently onboard.	Current inspection reports and certification for all chocks joints currently held onboard to be provided otherwise mobilise competent third party to undertake inspection and test. BP Drilling and Well Operations Policy	Within two months			

AUDIT REPORT ACTION SHEET

RIG TYPE: DP Semi-Submersible

RIG NAME: Deepwater Horizon

DATES OF AUDIT: 15 - 19 January 2008

RIG STATUS: Drilling Operations

REF	OBSERVATION	RECOMMENDATION	AUDIT TEAM ADVISED COMPLETION	ASSET ACCEPTANCE OR CHANGE	ACTUAL COMPLETION DATE	SIGNED OFF BY
1.3	<i>Technical Services</i>	<i>These items do not comply with BP Policies or Standards</i>				
1.3.1	Despite a Transocean Advisory regarding software management a robust software management system could not be demonstrated. Initially a software register could not be provided, once located the register although produced in November 2006 had not been subject to monthly and annual audits in line with Transocean policy. In addition backup copies of software for many systems were not available. Some were produced during the audit period.	Software management system to be maintained in accordance with the Transocean Advisory HQS-OPS-ADV-908-001. The system should be auditable with all changes transparent and software versions current. BP Drilling and Well Operations Policy	Within three months			

AUDIT REPORT ACTION SHEET

RIG TYPE: DP Semi-Submersible

RIG NAME: Deepwater Horizon

DATES OF AUDIT: 15 - 19 January 2008

RIG STATUS: Drilling Operations

REF	OBSERVATION	RECOMMENDATION	AUDIT TEAM ADVISED COMPLETION	ASSET ACCEPTANCE OR CHANGE	ACTUAL COMPLETION DATE	SIGNED OFF BY
1.6	<i>Mechanical Handling</i>	<i>These items do not comply with BP Policies or Standards</i>				
1.6.1	A number of flame cut pad eyes were identified; examples include on the BOP house roof hatches, choke and kill hose safety sling hang off pad eyes,	All flame cut uncertified pad eyes to be removed from service BP Golden Rules of Safety	Within one month			
1.6.2	A number of flame cut pad eyes were identified; examples include on the BOP house roof hatches, choke and kill hose safety sling hang off pad eyes. If pad eyes are required at these locations then they should be replaced	Replace flame cut pad eyes with machined made items designed and manufactured in accordance with recognised industry standards and Transocean policy. Pad eyes to be load tested and MPI following installation. BP Golden Rules of Safety	Within three months			
1.6.3	Emergency stop button failed to operate on the following man riding winches; starboard aft drill floor, port forward drill floor and starboard aft moon pool	Emergency stop function to be made operational on all man riding winches. BP Golden Rules of Safety	Prior to further use			
1.6.4	There is no procedure in place for the emergency load-lowering of personnel from the man riding winches.	Post clear procedure for operation of man riding winch emergency load lowering system. Ensure personnel have received training in its use. BP Golden Rules of Safety	Within one week			

AUDIT REPORT ACTION SHEET

RIG TYPE: DP Semi-Submersible

RIG NAME: Deepwater Horizon

DATES OF AUDIT: 15 - 19 January 2008

RIG STATUS: Drilling Operations

REF	OBSERVATION	RECOMMENDATION	AUDIT TEAM ADVISED COMPLETION	ASSET ACCEPTANCE OR CHANGE	ACTUAL COMPLETION DATE	SIGNED OFF BY
2.1	<i>Health, Safety and Safety Management</i>	<i>These items are outside API, legislation, Rig Owner policies, have high safety or environmental impact potential.</i>				
2.1.1	A container secured to a length of rope was used for taking liquid mud samples. A person, on another operation, was seriously injured using this equipment when the rope became caught in the agitator shaft.	Replace the rope with a solid shaft, broom handle or similar for the mud sampling container.	Immediately			
2.1.2	The coupling guard on the Mathey wire line unit is inadequate. The coupling is exposed.	Modify coupling guard on Mathey wire line unit such that rotating equipment is enclosed.	Prior to use			
2.1.3	The PPE lockers within the sack store and active pit room are poorly stocked with PPE. There is no inventory list within the PPE locker to indicate what type and quantities of PPE should be stocked.	Restock the PPE lockers within the sack store and active pit room with necessary PPE. PPE inventory to be posted inside each locker such that contents can be easily checked.	Immediately			
2.1.4	Access to the emergency shower and eye wash station in the sack store is obstructed due to placement of chemical pallets in the adjacent walkway.	Access to sack store emergency shower and eye wash station to be maintained unobstructed at all times. Paint chevrons around the safety equipment to designate no set down/storage area.	Within one month			
2.1.5	A pipe wrench was found hanging over the edge of the choke manifold access platform. This could have lead to a dropped object to the walkway below.	Install kick plates around the choke manifold access platform on the rig floor for dropped object prevention. In the meantime ensure unsecured tools are not stowed overhead	Within three months			
2.1.6	Very few MSDS sheets were available for the cleaning products within the galley.	Ensure MSDS sheets are available for all cleaning products within the galley.	Within one week			

AUDIT REPORT ACTION SHEET

RIG TYPE: DP Semi-Submersible

RIG NAME: Deepwater Horizon

DATES OF AUDIT: 15 - 19 January 2008

RIG STATUS: Drilling Operations

REF	OBSERVATION	RECOMMENDATION	AUDIT TEAM ADVISED COMPLETION	ASSET ACCEPTANCE OR CHANGE	ACTUAL COMPLETION DATE	SIGNED OFF BY
2.1.7	A significant number of the full body safety harnesses are covered in oil base mud. Additionally many were found lying on the decks sometimes in water while some did not have any identification tags attached. Documentary evidence to support regular harness inspection in line with Transocean policy could not be provided.	Carry out a visual inspection of all full body safety harnesses. Verify satisfactory condition of the harness and safety lanyards and ensure each harness is fitted with an identification tag. Safety harnesses to be properly stowed in the PPE lockers provided.	Within one week			
2.1.8	Extraction fan motor located on the mezzanine deck above the shale shakers has a damaged cooling fan cover. Rotating equipment is exposed.	Replace the damaged motor cooling fan cover on the extraction fan located on the mezzanine deck above the shale shakers.	Within one month			

AUDIT REPORT ACTION SHEET

RIG TYPE: DP Semi-Submersible

RIG NAME: Deepwater Horizon

DATES OF AUDIT: 15 - 19 January 2008

RIG STATUS: Drilling Operations

REF	OBSERVATION	RECOMMENDATION	AUDIT TEAM ADVISED COMPLETION	ASSET ACCEPTANCE OR CHANGE	ACTUAL COMPLETION DATE	SIGNED OFF BY
2.2	<i>Drilling and Well Control</i>	<i>These items are outside API, legislation, Rig Owner policies, have high safety or environmental impact potential.</i>				
2.2.1	Toe boards are not installed at the edges of a number of derrick walkways. Areas include at the crown in way of the block and fast line, at the fingerboard level at the dead line grating penetration, in way of the aft PRS control cabinets and at the access walkway in way of the forward PRS bridge.	Toe boards to be provided on open sided floors, platforms, walkways in accordance with API RP 54	Within three months			
2.2.2	Inconsistent approach to secondary retention in the derrick, while some CCTV cameras are provided with safety slings others are not, some instrumentation above the crown has safety slings while others do not, some equipment clamps and U-bolts above the crown have locknuts etc. while others do not.	Review equipment located in the derrick, ensure it is equipped with suitable means of secondary retention, be it lock nuts, lock wire or safety slings.	Within one month			
2.2.3	The crown bumper timbers are not equipped with safety slings in accordance with API recommended practice.	Safety slings to be installed on the crown bumper timbers in accordance with API RP 54	Within one month			
2.2.4	Items of trash were recovered/identified during the derrick inspection. These included fixings, split pins, loose cable band, plastic from drill line, lock wire, grease fittings, stainless tags and wire.	Full sweep of derrick to be conducted, all trash and loose items to be removed. Extra vigilance required by rig crews during derrick inspections.	Within two weeks			

AUDIT REPORT ACTION SHEET

RIG TYPE: DP Semi-Submersible

RIG NAME: Deepwater Horizon

DATES OF AUDIT: 15 - 19 January 2008

RIG STATUS: Drilling Operations

REF	OBSERVATION	RECOMMENDATION	AUDIT TEAM ADVISED COMPLETION	ASSET ACCEPTANCE OR CHANGE	ACTUAL COMPLETION DATE	SIGNED OFF BY
2.2.5	The forward manual tong counter weight safety sling is rotten due to corrosion.	Replace severely wasted / corroded safety sling provided for the forward manual tong counter weight.	Within one week			
2.2.6	Mud hose safety clamp bolts are not equipped with means of secondary retention.	Install suitable means of secondary retention to the mud hose safety clamp bolts.	Within one month			
2.2.7	Iron roughneck and casing tong was found in anti-collision system override and release. Transocean mitigation for this was that both the iron roughneck and casing tong are operated manually. Additionally despite upgrades to the iron roughneck travel encoders the problem, lost counts, still exists and due to software interface problems the casing tong is provided with insufficient feedback to be included in the anti collision system.	Make necessary modifications such that all equipment can operate reliable in the anti-collision system.	Within four months			
2.2.8	The NDT inspection of the load bearing areas of the drawworks brakes is scheduled on an annual basis. The brakes were not included in the last NDT inspection, due to ongoing operations, and consequently have not been conducted since June 2006.	Conduct NDT inspection of the load bearing areas, including the caliper support arms, of the drawworks brakes.	Within two months			
2.2.9	According to NDT inspection reports dated August 2007 NDT inspection of the PRS was not conducted in line with the 365 days maintenance procedure. Items such as hoisting jaw assembly, main housing and cylinder knuckles were not inspected.	Ensure all points identified on the 365 day PRS maintenance procedure are subject to NDT inspection with results clearly documented.	At next annual NDT inspection			