

UNITED STATES DEPARTMENT OF THE INTERIOR  
BUREAU OF SAFETY AND ENVIRONMENTAL ENFORCEMENT  
GULF OF MEXICO REGION

# ACCIDENT INVESTIGATION REPORT

**For Public Release**

1. OCCURRED

DATE: 17-OCT-2012 TIME: 0520 HOURS

2. OPERATOR: Exxon Mobil Corporation  
REPRESENTATIVE:  
TELEPHONE:  
CONTRACTOR: Transocean Offshore  
REPRESENTATIVE:  
TELEPHONE:

- STRUCTURAL DAMAGE
- CRANE
- OTHER LIFTING DEVICE
- DAMAGED/DISABLED SAFETY SYS.
- INCIDENT >\$25K
- H2S/15MIN./20PPM
- REQUIRED MUSTER
- SHUTDOWN FROM GAS RELEASE
- OTHER

3. OPERATOR/CONTRACTOR REPRESENTATIVE/SUPERVISOR  
ON SITE AT TIME OF INCIDENT:

6. OPERATION:

4. LEASE: G32654  
AREA: KC LATITUDE:  
BLOCK: 918 LONGITUDE:

- PRODUCTION
- DRILLING
- WORKOVER
- COMPLETION
- HELICOPTER
- MOTOR VESSEL
- PIPELINE SEGMENT NO.
- OTHER

5. PLATFORM:  
RIG NAME: T.O. DEEPWATER CHAMPION

6. ACTIVITY:  EXPLORATION (POE)  
 DEVELOPMENT/PRODUCTION  
(DOCD/POD)

8. CAUSE:

7. TYPE:  
 HISTORIC INJURY  
 REQUIRED EVACUATION 1  
 LTA (1-3 days)  
 LTA (>3 days)  
 RW/JT (1-3 days)  
 RW/JT (>3 days)  
 Other Injury

- EQUIPMENT FAILURE
- HUMAN ERROR
- EXTERNAL DAMAGE
- SLIP/TRIP/FALL
- WEATHER RELATED
- LEAK
- UPSET H2O TREATING
- OVERBOARD DRILLING FLUID
- OTHER

- FATALITY
- POLLUTION
- FIRE
- EXPLOSION

LWC  HISTORIC BLOWOUT  
 UNDERGROUND  
 SURFACE  
 DEVERTER  
 SURFACE EQUIPMENT FAILURE OR PROCEDURES

COLLISION  HISTORIC  >\$25K  <=\$25K

9. WATER DEPTH: 7381 FT.  
10. DISTANCE FROM SHORE: 200 MI.  
11. WIND DIRECTION: S  
SPEED: 2 M.P.H.  
12. CURRENT DIRECTION: SE  
SPEED: 2 M.P.H.  
13. SEA STATE: FT.

## 17. INVESTIGATION FINDINGS:

At approximately 0515 hours on 17 October 2012, a Transocean Toolpusher was injured by a falling object on board the Transocean Deepwater Champion drill ship while conducting drilling operations for ExxonMobil Corporation (ExxonMobil) in Keathley Canyon Block 918.

The Toolpusher's injury occurred as he was walking below a National Oilwell Varco (NOV) Top Drive System (TDS-1000) equipped with a Pipe Handler (PH-100) when the link tilt stop plate (LTSP), which is used to prevent the link tilt from extending fully to the "mousehole" position, fell approximately 13 feet striking him on his hard hat. The impact from the LTSP knocked him down and he sustained a 4 inch laceration to his head. The Toolpusher was evacuated to the East Jefferson Hospital located in Metairie, Louisiana (LA) where he was treated for his head laceration and released for duty with no restrictions.

The NOV TDS-1000 LTSP is secured in place by a pivot screw that allows it to rotate clear of the PH-100 link tilt crank arm. The LTSP has a stop adjustment screw that can be adjusted to bi-directionally to various positions against the raised boss so that elevator links can be extended to the "derrickmen" and "mousehole" positions. The TDS-1000 LTSP is rotated on the pivot screw remotely with a hydraulic cylinder piston and its rotation is dependent on the setting of the stop adjustment screw. The LTSP pivot screw is subject changing loads relevant to the setting of the stop adjustment screw. If the stop adjustment screw is not set correctly, it will allow the LTSP to rotate 180 degrees out of its normal position.

A Transocean incident investigation determined that on the day of the accident, the LTSP was rotated by 180 degrees from its normal position exposing it to forces outside its design parameters. With LTSP rotated out of its normal position and the link tilt extended, the pivot screw sheared releasing the LTSP that fell 13 feet striking the Toolpusher on the rig floor.

NOV has issued several TDS-1000 safety alerts involving dropped objects from shearing of the pivot screw. The 25 July 2008, NOV Safety Alert Product Bulletin No.: TDS-08-08 informed their customers about dropped link tilt stop assemblies and the availability of an upgrade kit that contained a stronger Grade 8 pivot screw with a single crossed drilled hole. However, the safety alert did not mention anything about the installation of a retention sling to prevent the LTSP from falling if the pivot screw is sheared.

In August of 2009, the NOV TDS-1000 with the PH-100 was delivered to the shipyard in South Korea for installation on the Transocean Deep Water Champion. According to Transocean, the LTSP assembly was equipped with an upgraded stop screw, but no secondary retention sling.

On 23 October 2009, NOV released Safety Alert Product Bulletin No. D614000513-PIB-001 notifying their customers about LTSPs falling to the rig floor due to over rotation of the LTSPs that sheared the pivot screws. The pivot screws failed where the cross drilled holes were located on the screw. The safety alert recommended the LTSP be inspected for damage or unusual wear and that an upgrade kit with a new Grade 8 pivot screw be installed. In addition, the safety alert recommended that a hole be drilled through the LTSP to install a safety lanyard from the LTSP to the link tilt arm pivot shaft to prevent the LTSP from falling in the event of pivot screw failure. However, the upgrade kit did not contain a safety lanyard and it left room for interpretation by the end user if a safety lanyard was required.

In response to the NOV 23 October 2009 Safety Alert, Transocean released Equipment Alert HQS-OPS-EAL-TD-026 on the same date that required inspections of the LTSP assembly and the installation of a temporary safety lanyard until the upgrade kit with a retention sling was available. As mentioned earlier, the NOV 23 October 2009 Safety Alert left the decision for the installation of the LTSP safety lanyard up to their customers; therefore, there was some confusion between NOV and Transocean

regarding the upgrades. The Transocean investigation reported that an upgrade kit with the upgraded stop and pivot screws was installed on the Deepwater Champion's TDS-1000; however, records were not provided to BSEE to confirm that a safety lanyard had been installed on the LTSP.

The Transocean Level 1 Investigation Report stated that at some time prior to this incident, the LTSP had rotated 180 degrees out of its normal position and remained in that position. Maintenance records indicated that the LTSP assembly was inspected two times prior to this incident; however, the inspections did not report the orientation of the LTSP. The Transocean's investigation team could not conclude how the LTSP had rotated out of its normal position, nor was it clear if the LTSP had previously been exposed to stresses beyond its design.

On 19 October 2012, due to the Transocean Deepwater Champion dropped TDS-1000 LTSP incident, NOV issued Safety Alert Product Bulletin No.: 10696954-PIB Revision 01 followed by Transocean issuing Equipment Alert HQS-OPS-EAL-TDPH-024 that required more thorough LTSP assembly inspections and recommended the installation of the LTSP retention sling or safety lanyard if one was not installed.

On 24 January 2013, BSEE inspectors met with a NOV representative at their Broussard, LA facility regarding the LTSP assembly. The NOV representative informed BSEE that the LTSP is not designed to receive any type of outside forces and that NOV's five year maintenance contract with Transocean indicated that the pivot screw had normal wear and tear. The NOV representative also informed BSEE that due to the upgrades of the pivot screws, that a LTSP retention sling was not required on the TDS-1000 and that it was up to the customer to assess their situations and personal rig safety needs.

The probable cause of the accident was due to the LTSP rotating out of its normal position exposing it to forces outside it designed parameters that resulted in the shearing of the pivot screw that allowed the LTSP to fall to the rig floor injuring the Toolpusher.

Possible contributing causes include the following: 1) the NOV safety alerts were unclear about corrective actions to implement regarding the installation of a LTSP retention sling that lead to some confusion between NOV and Transocean, 2) the LTSP upgrade kits provided by NOV did not contain all parts and drawings to Transocean necessary for upgrading; and 3) according to Transocean's investigation, the Deepwater Champion maintenance records did not record any damage, unusual wear or the orientation of the LTSP assembly during top drive inspections. Furthermore, ExxonMobil was not informed of the NOV safety alerts released to Transocean; therefore, ExxonMobil did not have any knowledge of LTSP pivot screw failures resulting in dropped objects.

18. LIST THE PROBABLE CAUSE(S) OF ACCIDENT:

The probable cause of the accident was due to the LTSP rotating out of its normal position exposing it to forces outside it designed parameters that resulted in the shearing of the pivot screw that allowed the LTSP to fall to the rig floor injuring the Toolpusher.

19. LIST THE CONTRIBUTING CAUSE(S) OF ACCIDENT:

Possible contributing causes include the following: 1) the NOV safety alerts were unclear about corrective actions to implement regarding the installation of a LTSP retention sling that lead to some confusion between NOV and Transocean, 2) the LTSP upgrade kits provided by NOV did not contain all parts and drawings to Transocean necessary for upgrading; and 3) according to Transocean's investigation, the Deepwater Champion maintenance records did not record any damage, unusual wear or the orientation of the LTSP assembly during top drive inspections. Furthermore, ExxonMobil was not informed of the NOV safety alerts released to Transocean; therefore, ExxonMobil did not have any knowledge of LTSP pivot screw failures resulting in dropped objects.

20. LIST THE ADDITIONAL INFORMATION:

21. PROPERTY DAMAGED:

Link Tilt Stop Plate and Pivot Screw.

NATURE OF DAMAGE:

The LTSP sustained damage when it was exposed to forces outside its design parameters and pivot screw was damage when it was sheared.

ESTIMATED AMOUNT (TOTAL): \$816

22. RECOMMENDATIONS TO PREVENT RECURRANCE NARRATIVE:

The BSEE Lafayette District recommends that the Office of Safety Management issue a Safety Alert identifying the potential hazards about LTSP pivot screw failures on the NOV TDS-1000 and other models of similar design.

23. POSSIBLE OCS VIOLATIONS RELATED TO ACCIDENT: NO

24. SPECIFY VIOLATIONS DIRECTLY OR INDIRECTLY CONTRIBUTING. NARRATIVE:

25. DATE OF ONSITE INVESTIGATION:

17-OCT-2012

26. ONSITE TEAM MEMBERS:  
**Ernest Carmouche / Troy Naquin /**

29. ACCIDENT INVESTIGATION  
PANEL FORMED: **NO**

OCS REPORT:

30. DISTRICT SUPERVISOR:

**Elliott S. Smith**

APPROVED

DATE: **13-MAR-2013**

