

UNITED STATES DEPARTMENT OF THE INTERIOR
MINERALS MANAGEMENT SERVICE
GULF OF MEXICO REGION

ACCIDENT INVESTIGATION REPORT

1. OCCURRED

DATE: **28-OCT-2009** TIME: **2200** HOURS

2. OPERATOR: **Chevron U.S.A. Inc.**
REPRESENTATIVE: **Hiser, Tom**
TELEPHONE: **(832) 854-5695**
CONTRACTOR: **Transocean Offshore**
REPRESENTATIVE: **Davenport, Joey**
TELEPHONE: **(713) 422-4881**

- 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:

4. LEASE: **G32547**
AREA: **GC** LATITUDE:
BLOCK: **945** LONGITUDE:

6. OPERATION:

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

5. PLATFORM:
RIG NAME: **T.O. DISCOVERER DEEP SEAS**

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

8. CAUSE:

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

7. TYPE:

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

- FATALITY
- POLLUTION
- FIRE
- EXPLOSION

- LWC HISTORIC BLOWOUT
- UNDERGROUND
 - SURFACE
 - DEVERTER
 - SURFACE EQUIPMENT FAILURE OR PROCEDURES

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

9. WATER DEPTH: _____ FT.

10. DISTANCE FROM SHORE: _____ MI.

11. WIND DIRECTION: **N**
SPEED: **1** M.P.H.

12. CURRENT DIRECTION: **N**
SPEED: **1** M.P.H.

13. SEA STATE: **1** FT.

17. INVESTIGATION FINDINGS:

On 28 October 2009 Transocean's Discover Deep Seas lost control of the ship for approximately three minutes due to a maintenance power loss. The crew had been performing preventative maintenance on equipment in the mud module. This maintenance took longer than expected and the vessel's transformers were de-energized for approximately 29 hours. After maintenance was completed, the vessel's transformers shorted-out while re-energizing the breakers causing failure to the two units. The ship "browned-out" with one main generator continuing to function. The emergency diesel generator also started up and energized the emergency circuits. The vessel's thrusters and steering capability tripped offline allowing it to drift up to 83 feet, but the rig was able to stabilize over location in nine minutes. The general fire alarms were sounded and the crew responded by manning emergency stations and muster points. No fire was found, but the emergency alert teams maintained their positions while the general crew was not dismissed from muster until the smoke had cleared.

Weather conditions on 27 October 2009 were humid and warm. The de-energized transformers are located in a compartment that is ventilated with the outside air using supply and exhaust fans. The mud module SCR room is located directly below the transformers and is cooled with air conditioning.

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

Moisture build-up in the area of the transformers while the transformers were de-energized is the most probable cause of the incident.

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

The combination of ambient warmth and humidity with the condensation of the air conditioning may have caused weakness in the transformer's insulation, resulting in moisture build-up on the transformer coils.

20. LIST THE ADDITIONAL INFORMATION:

A follow up inspection was conducted by Magnetics Design, and their recommendations are as follows:

Consideration should be given to providing means of reducing the presence of moisture.

While the transformers are operating normally, the heat generated by the core is sufficient to prevent moisture build-up. However, during periods when the transformers are de-energized, the anti-condensation heaters should be energized, or an additional heat source should be provided. Following any period of de-energization, the insulation resistance of a transformer should be measured and recorded prior to re-energization. If the transformer is known to be wet, it should first be dried using clean rags and the application of heat. Reference should be made to ANSI/IEEE Standard C57.94 Recommended Practice for Installation, Application, Operation and Maintenance of Dry-Type General Purpose Distribution and Power Transformers for the method to be used for making insulation resistance measurements and for the recommended values which should be obtained.

21. PROPERTY DAMAGED:

NATURE OF DAMAGE:

ESTIMATED AMOUNT (TOTAL): **\$500,000**

22. RECOMMENDATIONS TO PREVENT RECURRANCE NARRATIVE:

Due to the nature of this incident, the MMS Houma District has no recommendations to report to the MMS Regional Office.

23. POSSIBLE OCS VIOLATIONS RELATED TO ACCIDENT: **NO**

24. SPECIFY VIOLATIONS DIRECTLY OR INDIRECTLY CONTRIBUTING. NARRATIVE:

n/a

25. DATE OF ONSITE INVESTIGATION:

26. ONSITE TEAM MEMBERS:

Josh Ladner / Ben Coco /

29. ACCIDENT INVESTIGATION

PANEL FORMED: **NO**

OCS REPORT:

30. DISTRICT SUPERVISOR:

Bryan A. Domangue

APPROVED

DATE: **22-FEB-2010**