

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: 26-MAY-2017 TIME: 0530 HOURS

2. OPERATOR: Anadarko Petroleum Corporation
REPRESENTATIVE:
TELEPHONE:
CONTRACTOR: Diamond Offshore Drilling, Inc.
REPRESENTATIVE:
TELEPHONE:

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

4. LEASE: G25174
AREA: GC LATITUDE:
BLOCK: 627 LONGITUDE:

5. PLATFORM:
RIG NAME: DIAMOND OCEAN BLACKHORNET

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

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

STRUCTURAL DAMAGE
 CRANE
 OTHER LIFTING DEVICE
 DAMAGED/DISABLED SAFETY SYS.
 INCIDENT >\$25K **damaged electrical**
 H2S/15MIN./20PPM **equipment**

 REQUIRED MUSTER
 SHUTDOWN FROM GAS RELEASE
OTHER

6. OPERATION:

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

8. CAUSE:

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

9. WATER DEPTH: 4410 FT.

10. DISTANCE FROM SHORE: 143 MI.

11. WIND DIRECTION:
SPEED: M.P.H.

12. CURRENT DIRECTION:
SPEED: M.P.H.

13. SEA STATE: FT.

14. PICTURES TAKEN:

15. STATEMENT TAKEN:

17. INVESTIGATION FINDINGS:

On May 26, 2017, aboard the Diamond Ocean Blackhornet drillship contracted to Anadarko Petroleum Corporation in Green Canyon Block 627, smoke alarms from the portside switchboard electrical room triggered a required muster of personnel.

During the evening of May 10, 2017, the night maintenance crew received a report from the drilling crew that there was an electrical fault in the port 690 volt (V) drilling switchboard. This is one of two electrical switchboards that supplies power to the electrical motors which power the drawworks, mud pumps, and the top drive. The main Human Machine Interface (HMI) screen revealed that Dynamic Braking Unit (DBU) 7, located within the port 690 V switchboard, was inoperable due to blown fuses and a short in the inverter module. DBUs allow dissipation of excess energy from the drilling motors during operations but are not critical to the rig's overall operation. The maintenance crew decided to replace the fuses and address the shorted inverter at a later date, when the port 690 V switchboard could be shut down without interrupting operations. Shutting down the port drilling switchboard at that time would have removed power from half of the rig's drawworks motors, mud pumps, and top drive motors; so it was decided to proceed with the switchboard powered and DBU 7 down so as not to interfere with the rig's operation.

On May 11, 2017, a water leak developed on DBU 7, and a Permit to Work (PTW) order was initiated to stop the leak. Once the PTW was approved, the cabinet was opened and the water valve handle on the inverter was turned to the closed position, which stopped the leak. On May 13, 2017, a PTW was obtained to replace the blown fuses and address the shorted inverter on DBU 7, but it was rescinded because the Blow Out Preventers (BOPs) were unlatched in preparation to install the subsea tree. The crew did not want to de-energize half of the drawworks motors while the BOPs were being suspended and held by the drawworks.

On the morning of May 26, 2017, five smoke alarms activated simultaneously in the port 690 V switchboard room, and the general alarm was sounded for personnel to muster. While other personnel mustered, the fire team assembled in order to enter the port 690 V switchboard room. Upon entry, they ventilated the room and began to assess damage. The team observed fire and smoke damage to DBU 7, likely caused by an arc flash associated with blown fuses.

Bureau of Safety and Environmental Enforcement (BSEE) Inspectors conducted an onsite inspection/investigation on May 30, 2017, and collected documentation for this incident. The information collected indicated that an arc flash occurred when a circuit shorted through an Insulated Gate Bipolar Transistor (IGBT) switch and enabled arcing inside the blown fuses. This arcing created carbon buildup, which

gradually enabled larger arcs to develop and destroy the fuse housing. Once the fuse housing was destroyed, the arcs jumped from the fuses to the cabinet frame, which created the arc flash that destroyed the cabinet and set off the smoke alarms.

A third party contractor was hired to inspect, repair, and replace the damaged equipment, and the rig is currently operating at full capacity. It has been determined if the DBU fuses blow in the future, the maintenance crew should replace them immediately to prevent a reoccurrence of this incident.

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

- * Failure to replace fuses in DBU 7 immediately after they blew.
- * Carbon buildup in the fuses created a path for electrical current.

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

- * Lack of knowledge: The maintenance crew failed to recognize the possibility of carbon buildup in the blown fuses in DBU 7.

20. LIST THE ADDITIONAL INFORMATION:

21. PROPERTY DAMAGED:

Electrical Cabinet DBU 7

NATURE OF DAMAGE:

Electrical components shorted out and burned from arc flash

ESTIMATED AMOUNT (TOTAL): **\$50,000**

22. RECOMMENDATIONS TO PREVENT RECURRANCE NARRATIVE:

BSEE Houma District has no recommendations to make to the Office of Incident Investigations at this time.

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

24. SPECIFY VIOLATIONS DIRECTLY OR INDIRECTLY CONTRIBUTING. NARRATIVE:

25. DATE OF ONSITE INVESTIGATION:

30-MAY-2017

28. ACCIDENT CLASSIFICATION:

26. ONSITE TEAM MEMBERS:

Paul Reeves / Daniel Ballard /
Cedric Bernard /

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

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OCS REPORT:

30. DISTRICT SUPERVISOR:

Bryan A. Domangue

27. OPERATOR REPORT ON FILE:

APPROVED

DATE: 19-SEP-2017