

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

1. OCCURRED

DATE: **16-JUN-2008** TIME: **0716** HOURS

2. OPERATOR: **BHP Billiton Petroleum (GOM) Inc.**

REPRESENTATIVE: **Bloom, Michael**

TELEPHONE: **(713) 599-6142**

CONTRACTOR:

REPRESENTATIVE:

TELEPHONE:

3. OPERATOR/CONTRACTOR REPRESENTATIVE/SUPERVISOR

ON SITE AT TIME OF INCIDENT:

4. LEASE: **G20084**

AREA: **GC** LATITUDE:

BLOCK: **653** LONGITUDE:

5. PLATFORM:

RIG NAME: **GSF DEVELOPMENT DRILLER I**

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 **TDS/Block**
- DAMAGED/DISABLED SAFETY SYS.
- INCIDENT >\$25K
- H2S/15MIN./20PPM
- REQUIRED MUSTER
- SHUTDOWN FROM GAS RELEASE
- OTHER

6. OPERATION:

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

8. CAUSE:

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

9. WATER DEPTH: **4353** FT.

10. DISTANCE FROM SHORE: **120** MI.

11. WIND DIRECTION: **N**
 SPEED: **3** M.P.H.

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

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

17. DESCRIBE IN SEQUENCE HOW ACCIDENT HAPPENED:

While running 13-3/8 inch casing, the Traveling Block Assembly (TBA) began to descend faster than the driller was running it in the well. The driller attempted to stop the descent by activating the emergency stop function but the descent did not stop or slow and continued until the TBA came to a stop on the rig floor. The rig floor was clear of all personnel while the descent was ongoing and before the TBA contacted the rig floor.

The TBA was supported by the drillpipe elevators, and the casing was supported by 1000 ton slips which engaged when the elevators hit the rig floor. The drill line sustained a backlash which resulted in the line parting at the fast line guide.

The Blowout Preventer (BOP) annular was functioned with the casing across the BOP stack, and it was determined that the casing was spaced across the BOP stack such that the Casing RAM's could be utilized if needed. The casing was also determined to be intact the float equipment in the casing shoe was holding with the casing was full of fluid. No flow was observed from the well, and no injuries or pollution resulted from this event.

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

The drawworks has six motors to operate the top drive, but two of the motors were found not operating properly. As a result, the drawworks were not capable of operating at its full power capacity. The problem found with the two motors was within the motor shaft and pinion connection.

The slip alarm, used for detecting if the TBA is slipping while traveling at a given speed, was set with an excessive delay of 10 seconds. The slip alarm is used for detecting if the block assembly is slipping while traveling at a given speed. The slippage sensing is observed on the pinion connection within the motors and allows the motors to share the load equally. This excessive delay did not give an early enough alarm that the TBA was slipping while descending and did not distribute the load equally among the motors. The total descent time was approximately 27 seconds.

The emergency brake calipers were not designed for dynamic braking at the speed they were activated and were not able to stop the descent. It was also found that there was an excessive delay between the activation from brake one to brake two of 6 seconds.

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

The software logic for the drawworks did not allow for the emergency brake activation when the actual TBA speed was different from the speed the software sensed. This is due to the delay in the slip alarm. If the motor braking cannot hold the load, then the software logic did not allow the engaging of the emergency brake. It was also found that the amp output for the drawworks motors was only 906 amps, even though the motors are rated for 1120 amps. This lower amperage did not allow for full motor braking potential to be reached.

20. LIST THE ADDITIONAL INFORMATION:

The derrick is rated for two million pounds. The load at the time of the incident was 1.4 million pounds.

The brakes were serviced and tested prior to the incident on 13-JUN-2008.

The slip alarm time has been corrected to 4 seconds.

The emergency brake activation delay from brake one to brake two has been corrected to a one second delay.

The stop brake logic has been revised to include the capability for dynamic braking.

The drawworks motors have been recommissioned to include torque checks on the motor shaft and pinion connection. A specific inspection checklist has also been implemented to include a review of pinion change-out procedures, slip alarm logic and emergency brake function.

Personnel have also been updated and made aware on the changes within the rig's drawworks system software logic.

21. PROPERTY DAMAGED:

Damage was sustained to: the drawworks brake pads and disks, housing, and drill line; the derrick crown and TBA sheave guards; the derrick drill line cable fram; the top drive elevators.

NATURE OF DAMAGE:

The drawworks brake pads and disks are galled and chipped, bent housing, and severed drill line. The derrick crown and TBA sheave guards are bent. The derrick drill line cable frame was bent. The top drive elevators had solid body damage from impact.

ESTIMATED AMOUNT (TOTAL): \$1,400,000

22. RECOMMENDATIONS TO PREVENT RECURRENCE NARRATIVE:

The MMS Houma District has no recommendations for the MMS Regional Office.

23. POSSIBLE OCS VIOLATIONS RELATED TO ACCIDENT: NO

24. SPECIFY VIOLATIONS DIRECTLY OR INDIRECTLY CONTRIBUTING. NARRATIVE:

25. DATE OF ONSITE INVESTIGATION:

26. ONSITE TEAM MEMBERS:

Ben Coco /

29. ACCIDENT INVESTIGATION

PANEL FORMED: NO

OCS REPORT:

30. DISTRICT SUPERVISOR:

Bryan A. Domangue

APPROVED

DATE: 30-OCT-2008