

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF OCEAN ENERGY MANAGEMENT, REGULATION AND ENFORCEMENT
GULF OF MEXICO REGION

ACCIDENT INVESTIGATION REPORT

1. OCCURRED

DATE: **31-MAY-2011** TIME: **2010** HOURS

2. OPERATOR:

Chevron U.S.A. Inc.

REPRESENTATIVE: **Broussard, Cory**

TELEPHONE: **(337) 989-3472**

CONTRACTOR:

REPRESENTATIVE:

TELEPHONE:

- STRUCTURAL DAMAGE
- CRANE
- OTHER LIFTING DEVICE
- DAMAGED/DISABLED SAFETY SYS.
- INCIDENT >\$25K **350,000**
- 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:

G06358

AREA: **GB** LATITUDE:

BLOCK: **189** LONGITUDE:

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

5. PLATFORM:

A (Tick)

RIG NAME:

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 **Fire tube failure**

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

9. WATER DEPTH: **720** FT.

10. DISTANCE FROM SHORE: **127** MI.

11. WIND DIRECTION: **S**
SPEED: **10** M.P.H.

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

13. SEA STATE: **4** FT.

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

17. INVESTIGATION FINDINGS:

On 31 May 2011, during normal operations, a fire occurred at approximately 8:10 pm (2010 hours) which resulted in damage to a Heater Treater. At the time of the incident, witnesses heard a platform process alarm, followed by an announcement over the gai-tronics system, stating the burner on the Heater Treater shut down as a result of low flame (the Burner Safety Low (BSL) tripped). The platform SAFE Chart depicts that the BSL is only required to shut-off gas supply to the Heater Treater fired component (such as the main burner and pilot) and indicate an alarm; therefore, oil and gas production momentarily remained online until such time the operators' manually shut-in production. Witnesses stated that shortly after the process alarm activated they heard the fire alarm signal followed by a verbal announcement from the contract operator stating smoke was coming from the production deck. Platform operators proceeded toward the smoke and discovered flames emanating from the Heater Treater's fire box. Although this Heater Treater had dual fire tubes, the fire occurred only in the left side. As some of the operator's manually shut-in production, others utilized firewater hose reels on the cellar/production deck and sub-cellar deck to extinguish the fire which lasted approximately 10 minutes. The fire damage was confined to the Heater Treater and there were no reported injuries associated with this incident.

Subsequent to extinguishing the fire, the operators monitored the area and then assessed the cause of the fire. The operator's assessment revealed that a pin hole developed in the Heater Treater fire tube; therefore, produced oil leaked inside the fire tube and sprayed in the vicinity of the main burner. As a result an intense fire erupted and destroyed the Heater Treater fire box and associated components on the left side of the unit.

BOEMRE Lake Charles District conducted an onsite investigation into this incident and confirmed the operators' findings with respect to the pin hole at the top of the fire tube. The BOEMRE investigation discovered that, at the time of the incident, the platform safety system did not function as per the SAFE Chart. As a result of the safety system (thermal detector above the Heater Treater fired component) not performing its design function, the operators had to manually shut-in the platform. Furthermore, with respect to manually shutting in the platform, it was the lead operator's decision not to utilize the Emergency Shut Down (ESD) station based on his knowledge of how the safety system is designed on this platform (the ESD causing a loss of electrical power to the firewater pump and the potential for an extended delay in response time for the diesel firewater pump to activate). Furthermore, regarding the finding with respect to the safety system not functioning properly during the incident, the BOEMRE inspectors recommended a complete function test of the thermal detectors. The results of the function test revealed multiple failures within the safety system.

Further investigation findings revealed that the same fire tube experienced a leak near the fire tube flange in January 2011. This leak was detected by the platform operator and repaired without incident. In order to perform the welding procedure to install the metal patch on the fire tube, the Heater Treater was cleaned out and an internal inspection of the vessel and fire tube were performed. The inspection revealed severe corrosion and deep pitting on the shell of the vessel and on the fire tube. Once the construction crew completed the installation of the patch on the fire tube and repairs to the internal shell of the vessel the unit was returned to service.

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

The Heater Treater's fire tube developed a pin hole which allowed the produced oil to leak inside the fire tube. The oil, under normal Heater Treater system pressure of 20 to 30 psi, sprayed in the vicinity of the main burner and resulted in an intense fire which destroyed the Heater Treater fire box and associated components on the left side of the unit.

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

1. The inspection techniques utilized to inspect the fire tube in January 2011 failed to identify the thin spot on the tube.
2. The failure to repair or replace the extremely corroded and pitted section of the fire tube led to the fire.

20. LIST THE ADDITIONAL INFORMATION:

| | |
|---|-------------------|
| 21. PROPERTY DAMAGED: | NATURE OF DAMAGE: |
| Heater Treater fire tube and associated fire components | Destroyed by fire |

ESTIMATED AMOUNT (TOTAL): \$350,000

22. RECOMMENDATIONS TO PREVENT RECURRENCE NARRATIVE:

Lake Charles District recommends:

The Regional Operations Analyst utilizes the Lake Charles District generated Heater Treater/Flame Arrestor/Statck Arrestor draft survey to coordinate data collection within BOEMRE. This data utilized in conjunction with the number of incidents related to these components may outline trends that could result in Safety Alerts and/or an NTL to the industry.

23. POSSIBLE OCS VIOLATIONS RELATED TO ACCIDENT: YES

24. SPECIFY VIOLATIONS DIRECTLY OR INDIRECTLY CONTRIBUTING. NARRATIVE:

G-111 - As a result of not properly maintaining the Heater Treater's fire tube, a hole developed in the fire tube's heat impingement area and caused a significant fire.

P-175 - As a result of the thermal detector over the Heater Treater not performing its design function, the platform had to be manually shut-in.

25. DATE OF ONSITE INVESTIGATION:

01-JUN-2011

26. ONSITE TEAM MEMBERS:

29. ACCIDENT INVESTIGATION
PANEL FORMED: NO

Marcus Mouton / Darron Miller /
Cody LeBlanc /

OCS REPORT:

30. DISTRICT SUPERVISOR:

Larry Williamson

APPROVED

DATE: 18-AUG-2011

FIRE/EXPLOSION ATTACHMENT

1. SOURCE OF IGNITION: **Flame within fire tube**

2. TYPE OF FUEL:
- GAS
 - OIL
 - DIESEL
 - CONDENSATE
 - HYDRAULIC
 - OTHER

3. FUEL SOURCE: **Oil Treater developed pin hole allowing oil to contact burner**

4. WERE PRECAUTIONS OR ACTIONS TAKEN TO ISOLATE KNOWN SOURCES OF IGNITION PRIOR TO THE ACCIDENT ? **NO**

5. TYPE OF FIREFIGHTING EQUIPMENT UTILIZED:
- HANDHELD
 - WHEELED UNIT
 - FIXED CHEMICAL
 - FIXED WATER
 - NONE
 - OTHER **hose reel units, fire water pump**

