

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

ACCIDENT INVESTIGATION REPORT

1. OCCURRED

DATE: **14-OCT-2009** TIME: **0945** HOURS

2. OPERATOR: **Hilcorp Energy GOM, LLC**
 REPRESENTATIVE: **Walker, Julie**
 TELEPHONE: **(713) 289-2806**
 CONTRACTOR: **Flow Petroleum Services, Inc.**
 REPRESENTATIVE: **Mire, Darren**
 TELEPHONE: **(337) 289-0922**

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

4. LEASE: **00205**
 AREA: **VR** LATITUDE:
 BLOCK: **38** LONGITUDE:

5. PLATFORM: **E**
 RIG NAME:

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

7. TYPE:

HISTORIC INJURY
 REQUIRED EVACUATION **1**
 LTA (1-3 days)
 LTA (>3 days) **1**
 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
 H2S/15MIN./20PPM
 REQUIRED MUSTER
 SHUTDOWN FROM GAS RELEASE
 OTHER

6. OPERATION:

PRODUCTION
 DRILLING
 WORKOVER
 COMPLETION
 HELICOPTER
 MOTOR VESSEL
 PIPELINE SEGMENT NO.
 OTHER **Compressor Engine
 Maintenance**

8. CAUSE:

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

9. WATER DEPTH: **36** FT.

10. DISTANCE FROM SHORE: **9** MI.

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

12. CURRENT DIRECTION: **S**
 SPEED: **5** M.P.H.

13. SEA STATE: **2** FT.

17. INVESTIGATION FINDINGS:

On 14 October 2009 a Third Party Compressor Mechanic (Mechanic) initiated a Job Safety Analysis (JSA) to diagnose a problem with the fuel/air management system on a reciprocating gas compressor. Three other onboard Mechanics assisted in the process of troubleshooting the fuel/air management system and all signed the JSA. The compressor had to be started multiple times during the process and developed a problem with the starter. In the meantime, the Mechanic that developed the JSA departed the platform by helicopter and was not on the platform at the time the starter problem was discovered.

The three remaining Mechanics poured oil into the starter for lubrication purposes and oil bubbled out from the starter intake leading the Mechanics to believe there might be excessive pressure or a restriction in the exhaust piping. The exhaust piping was disconnected from the starter and the Mechanics then attempted to start the compressor by opening the manual start valve. The manual start valve was located approximately six feet from the starter. At this time, a large volume of gas vented from the starter exhaust piping and ignited, resulting in a flash fire that burned the right side of one of the attending Mechanic's face and right hand. The Mechanic was evacuated by helicopter and drove himself to the doctor.

Subsequent to the flash fire the starter was removed and inspected. The bendix and bearing showed signs of excessive wear and heat damage on the shaft. Evidence indicates that a possible ignition source was a spark generated from engagement of the starter bendix and the engine flywheel. The starter was replaced and exhaust piping reconnected prior to the Mechanics rolling the engine over without incident. Adjustments were then made to the fuel/air management unit as originally planned.

The JSA, prepared by the Mechanic not on the platform at the time of the incident, specifically addressed work to be done with respect to the fuel/air management unit without identifying the starter problem. No task-specific JSA was performed prior to removing the starter's exhaust piping.

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

The possible ignition source was a spark generated from the engagement of the starter bendix and the engine flywheel while the exhaust piping was disconnected from the starter.

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

- * Personnel involved in the compressor project failed to exercise Stop Work Authority (SWA) and re-evaluate the job scope after the starter problem was discovered.
- * Without a task-specific JSA prior to removing the starter's exhaust piping, the associated hazards and mitigating measures were not identified.
- * Personnel removed the gas compressor starter exhaust piping in lieu of disassembling the starter that could have allowed the damaged bendix and bearing on the inside of the starter housing to be discovered.
- * Failure to thoroughly diagnose the possibility of a restriction in the starter exhaust piping by first installing a pressure gauge to observe the pressure on the line prevented personnel from safely ruling out the theory of excessive back pressure on the exhaust piping.

20. LIST THE ADDITIONAL INFORMATION:

21. PROPERTY DAMAGED: NATURE OF DAMAGE:
None N/A

ESTIMATED AMOUNT (TOTAL): \$

22. RECOMMENDATIONS TO PREVENT RECURRENCE NARRATIVE:

The Lake Charles District recommends that the MMS Regional Office of Safety Management (OSM) issue a Safety Alert to heighten industry's awareness of the hazards involved with not properly venting exhaust gas from gas operated engine starters.

23. POSSIBLE OCS VIOLATIONS RELATED TO ACCIDENT: YES

24. SPECIFY VIOLATIONS DIRECTLY OR INDIRECTLY CONTRIBUTING. NARRATIVE:

G-110 - Operator failed to perform operations in a safe and workmanlike manner, thus resulting in a flash fire and injury to the 3rd party mechanic.
* The JSA was not updated to include the change in job scope.
* Personnel removed the gas compressor starter exhaust piping in lieu of disassembling the starter that could have allowed the damaged bendix and bearing on the inside of the starter housing to be discovered.
* Failure to thoroughly diagnose the possibility of a restriction in the starter exhaust piping by first installing a pressure gauge to observe the pressure on the line prevented personnel from safely ruling out the theory of excessive back pressure on the exhaust piping.

25. DATE OF ONSITE INVESTIGATION:

15-OCT-2009

26. ONSITE TEAM MEMBERS:

Scott Mouton / Royce Buford /
Wayne Meaux / Mike Jardell /

29. ACCIDENT INVESTIGATION

PANEL FORMED: NO

OCS REPORT:

30. DISTRICT SUPERVISOR:

Willard Smith Jr. /

D.Dykes for L. Williamson

APPROVED

DATE: 24-NOV-2009

FIRE/EXPLOSION ATTACHMENT

1. SOURCE OF IGNITION: **Believed to be spark from a damaged starter bendix**

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

3. FUEL SOURCE: **Gas starter exhaust piping was removed**

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

INJURY/FATALITY/WITNESS ATTACHMENT

OPERATOR REPRESENTATIVE

INJURY

CONTRACTOR REPRESENTATIVE

FATALITY

OTHER 3rd party mechanic

WITNESS

NAME :

HOME ADDRESS :

CITY :

STATE :

WORK PHONE :

TOTAL OFFSHORE EXPERIENCE :

YEARS

EMPLOYED BY :

BUSINESS ADDRESS :

CITY :

STATE :

ZIP CODE :

OPERATOR REPRESENTATIVE

INJURY

CONTRACTOR REPRESENTATIVE

FATALITY

OTHER 3rd party mechanic

WITNESS

NAME :

HOME ADDRESS :

CITY :

STATE :

WORK PHONE :

TOTAL OFFSHORE EXPERIENCE :

YEARS

EMPLOYED BY :

BUSINESS ADDRESS :

CITY :

STATE :

ZIP CODE :

INJURY/FATALITY/WITNESS ATTACHMENT

OPERATOR REPRESENTATIVE

INJURY

CONTRACTOR REPRESENTATIVE

FATALITY

OTHER 3rd party mechanic

WITNESS

NAME :

HOME ADDRESS :

CITY :

STATE :

WORK PHONE :

TOTAL OFFSHORE EXPERIENCE :

YEARS

EMPLOYED BY :

BUSINESS ADDRESS :

CITY :

STATE :

ZIP CODE :