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

ACCIDENT INVESTIGATION REPORT

1. OCCURRED

   DATE: **19-MAR-2006** TIME: **1000** HOURS

2. OPERATOR: **Shell Offshore Inc.**

   REPRESENTATIVE: **Bill Terrebonne**

   TELEPHONE: **(504) 728-7281**

3. LEASE: **G02638**

   AREA: **MC** LATITUDE:

   BLOCK: **194** LONGITUDE:

4. PLATFORM: **A-Cognac**

   RIG NAME

5. ACTIVITY:
   - [ ] EXPLORATION(POE)
   - [X] DEVELOPMENT/PRODUCTION (DOCD/POD)

6. TYPE:
   - [ ] FIRE
   - [ ] EXPLOSION
   - [ ] BLOWOUT
   - [ ] COLLISION
   - [ ] INJURY NO. **0**
   - [ ] FATALITY NO. **0**
   - [ ] POLLUTION
   - [X] OTHER **H2S detected excess of 20 ppm**

7. OPERATION:
   - [ ] PRODUCTION
   - [ ] DRILLING
   - [ ] WORKOVER
   - [ ] COMPLETION
   - [ ] MOTOR VESSEL
   - [ ] PIPELINE SEGMENT NO. _____
   - [X] OTHER **Construction/Repairs**

8. CAUSE:
   - [ ] EQUIPMENT FAILURE
   - [X] HUMAN ERROR
   - [ ] EXTERNAL DAMAGE
   - [ ] SLIP/TRIP/FALL
   - [ ] WEATHER RELATED
   - [ ] LEAK
   - [ ] UPSET H2O TREATING
   - [ ] OVERBOARD DRILLING FLUID
   - [ ] OTHER _____

9. WATER DEPTH: **1023** FT.

10. DISTANCE FROM SHORE: **15** MI.

11. WIND DIRECTION: **SE**

    SPEED: **29** M.P.H.

12. CURRENT DIRECTION: **S**

    SPEED: **6** M.P.H.

13. SEA STATE: **9** FT.

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

    Max Farmen

    CITY: **New Orleans** STATE: **LA**

    TELEPHONE: **(504) 728-7281**

    CONTRACTOR:

    CONTRACTOR REPRESENTATIVE/ SUPERVISOR ON SITE AT TIME OF INCIDENT:

    CITY: STATE:

    TELEPHONE:

17. DESCRIBE IN SEQUENCE HOW ACCIDENT HAPPENED:

On March 19, 2006, during a dewatering operation H2S was detected at concentrations above 20 ppm. Prior to construction activity as part of the recovery from Hurricane Katrina, the vessels at Cognac were de-inventoried of oil by displacing the oil with saltwater. The saltwater was treated with biocide. The H2S was detected by sampling on the CETCO temporary water treating equipment. The H2S was detected while pumping out the CPI's. The CPI's were being pumped from the top of the vessel. The gas space in the CPI's were checked for H2S content prior to starting and as the operation progressed. The H2S content was 0 ppm. Near the end of the pumping out the CPI's the H2S was detected on the CETCO equipment. The job was shut down. The highest internal H2S reading was 100 ppm.
It appears that the biocide treatment was not sufficient and the bacterium growth over the months may have contaminated the saltwater contained in the vessels and generated.

Findings:

It appears that the biocide treatment was not sufficient and the bacterium growth over the months may have contaminated the saltwater contained in the vessels and generated.

The dewatering operations were shut down and the MMS New Orleans District was notified of the H2S release.

The operator submitted a new dewatering plan for approval by the MMS District Office. This H2S Contingency Plan will be enacted to address this temporary solution while the dewatering operation takes place.

Several analyses techniques were used to confirm that the H2S gas experienced at the CETCO treating equipment was due to bacteria activity under loose sand and scale deposits in the Bulk Oil Treater (BOT V-300).

Deposit analyses revealed that 57% by weight of the deposit (oil coated scale and sand with iron sulfide) analyzed was oil coated and the remaining 43% consisted of calcium carbonate scale, iron oxide deposits, sand, salt and iron sulfide.

Water analyses indicated 50 PPM of H2S dissolved in the water. H2S gas constantly escapes out of the water and reacts with the air once the sample is taken, hence the possible reason for the lower values PPM's than originally reported.

Bacteria culture indicated positive.

In summary, the chemical treatment (Scale lnbititor/Biocide/02 Scavenger) employed was deemed ineffective to treat the oil-coated, scale/sand deposits with bacteria growth underneath. The chemical employed did not contact the growth underneath the scale/sand deposits. Draining the water from the BOT disturbed the bottom. H2S gas became free, once the oil-coated scale/sand deposits, providing a "safe-harbor" coating for the bacteria, was disturbed. Thus, H2S containing gas became present in the CETCO equipment being used to treat the water.

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

It appears that the biocide treatment was not sufficient and the bacterium growth over the months may have contaminated the saltwater contained in the vessels and generated.

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

21. PROPERTY DAMAGED:

None

NATURE OF DAMAGE:

None

ESTIMATED AMOUNT (TOTAL): **$**

22. RECOMMENDATIONS TO PREVENT RECURRANCE NARRATIVE:

The New Orleans District has no recommendations for MMS.

The New Orleans District concurs with Shell's recommendations to prevent recurrence as stated below:

1. The de-oiling plans and procedures will include detailed chemical treating of the residuals remaining in the vessels. Plans will include sampling initial fluids to validate appropriate chemical treatment as outlined below.
2. Use of an 02/scale inhibitor package chemical is sufficient for an initial de-inventory phase to remove oil from vessels.
3. Nalco EC6388A biocide should be added to the vessels de-oiled with circulation to contact any bacteria growth underneath oil-coated, scale/sand deposits. EC6388A is more effective in penetrating barriers. The EC6388A chemical treatment coupled with the circulation should eliminate bacteria growth.
4. Test for bacteria presence prior to dewatering.
5. Plan mitigative measures (further chemical treatment) if bacteria growth is verified.

The following precautions will be implemented during the vessel draining process:

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

24. SPECIFY VIOLATIONS DIRECTLY OR INDIRECTLY CONTRIBUTING. NARRATIVE:

25. DATE OF ONSITE INVESTIGATION:

23-MAR-2006

26. ONSITE TEAM MEMBERS:

Tom Machado /

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

OCS REPORT:

30. DISTRICT SUPERVISOR:

FPausina for TTrrosclair

APPROVED

DATE: **17-MAY-2006**