

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: 09-JAN-2021 TIME: 0600 HOURS

2. OPERATOR: Kosmos Energy Gulf of Mexico Oper

REPRESENTATIVE:

TELEPHONE:

CONTRACTOR: Seadrill Limited

REPRESENTATIVE:

TELEPHONE:

- STRUCTURAL DAMAGE
- CRANE
- OTHER LIFTING
- DAMAGED/DISABLED SAFETY SYS.
- INCIDENT >\$25K
- H2S/15MIN./20PPM
- REQUIRED MUSTER
- SHUTDOWN FROM GAS RELEASE
- OTHER

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

8. OPERATION:

4. LEASE: G24102

AREA: MC LATITUDE: 28.24248324

BLOCK: 727 LONGITUDE: -88.82703404

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

5. PLATFORM:

RIG NAME: SEADRILL WEST NEPTUNE

6. ACTIVITY:

- EXPLORATION (POE)
- DEVELOPMENT/PRODUCTION (DOCD/POD)

9. CAUSE:

7. TYPE:

INJURIES:

HISTORIC INJURY

OPERATOR CONTRACTOR

REQUIRED EVACUATION

LTA (1-3 days)

LTA (>3 days)

RW/JT (1-3 days)

RW/JT (>3 days)

FATALITY

Other Injury

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

POLLUTION

FIRE

EXPLOSION

LWC HISTORIC BLOWOUT

UNDERGROUND

SURFACE

DEVERTER

SURFACE EQUIPMENT FAILURE OR PROCEDURES

10. WATER DEPTH: 4912 FT.

11. DISTANCE FROM SHORE: 54 MI.

12. WIND DIRECTION: E
SPEED: 15 M.P.H.

13. CURRENT DIRECTION: SE
SPEED: 0 M.P.H.

14. SEA STATE: 0 FT.

15. PICTURES TAKEN:

16. STATEMENT TAKEN:

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

17. INVESTIGATION FINDINGS:

Investigation Findings:

For Public Release

On January 9, 2021, at approximately 06:00 hours, Kosmos Energy had a well control incident on board Seadrill West Neptune while conducting completion operations on the SS003 well at Mississippi Canyon (MC) Block 727. Kosmos Energy Gulf of Mexico reported the incident to the Bureau of Safety and Environmental Enforcement (BSEE) New Orleans District.

On January 9, 2021, circulation was initiated for packer fluid displacement after the driller received the instruction "no restrictions, watch the wellhead pressure" from the Lead Drilling Supervisor. While displacing the wellbore completion fluid to packer fluid, it appeared that the downhole Equivalent Circulating Density (ECD) sheared the upper and lower Fluid Loss Control Devices (FLCD). The rig immediately began to experience fluid losses of 600 barrel per hour (bhp). After dealing with the fluid losses for two days. A 50-barrel fluid loss pill was spotted, and losses slowed to 345 bhp. A second fluid loss pill was pumped which significantly decreased the losses eventually resulting in zero losses.

At approximately 17:00 hours on January 12, 2021, after losses stopped, the rig experienced approximately a 14-barrel gain on the trip tank. The well was shut in with one annular and one pipe ram closed and circulated out using the driller's method kill procedure. A small amount of oil was observed in the returns.

While waiting on additional fluids and materials, wellhead pressure was managed by bullheading kill weight fluid when required. The well was killed via bullheading down the annulus followed by bullheading down the work string with 3 Calcium carbonate (CaCo3) pills.

On the morning of January 13, 2021, there was minimal pressure on the drill pipe and 4000 psi on the wellhead, which equated to 240 psi above the completion fluid hydrostatic column.

At 14:30 hours on January 14, 2021, the pressure on the wellhead was 5839 psi, which equates to 2079 psi above the completion fluid hydrostatic. The drill pipe was 1400 psi.

Pressure management operations began at 19:00 hours on January 14, 2021. Shut in Drill Pipe Pressure (SIDP) 1700 psi, Wellhead Pressure (WHP) 6347 psi which equates 2587 psi above completion fluid hydrostatic Shut in Casing Pressure (SICP). After pumping complete annulus volume at 20:30 hours, SIDP 1260 psi, SICP 634 psi. Switched to pumping down the drill pipe at 20:35 hours. After pumping complete drill pipe volume at 23:30 hours, SIDP 0 psi, SICP 820 psi. So, after complete displacement of annulus and drill pipe, SICP decreased from 2587 psi to 820 psi.

Bullhead kill operations began at 18:00 hours on January 15, 2021, consisting of pumping kill weight fluid down the annulus, then down the drill pipe followed by several calcium carbonate fluid loss pill, the well was successfully killed. The well was circulated on choke using driller's well control method and completed on January 17, 2021.

According to Kosmos' investigation report, it was determined the unintentional shearing and opening of the fluid loss control devices can be attributed to four points noted below. Had any single one of these causes been addressed adequately, the incident likely would have been prevented.

1. Risk Recognition: The risk, consequences, and mitigations associated with the

inadvertent shearing and opening of the fluid loss control devices were not adequately assessed during the planning and review phases of the completion. Within the Kosmos Management System, there are opportunities for this risk to be addressed during the procedural development phase and the line-by-line procedural review, as well as during the Complete Well on Paper (CWOP).

2. Communication: Direct communication between the Day Drilling Supervisor and the Lead Drilling Supervisor did not take place even though both supervisors were aware of the Driller's need for understanding what pump rate to use. The Halliburton Tool Rep and the Consultant Completion Specialist both failed to communicate information they should have known. Neither the Halliburton Tool Rep nor the Consultant Completion Specialist went to the rig floor to assist with supervising the displacement operation. The instruction to the Driller was given by the Lead Drilling Supervisor and the Halliburton Tool Rep. The Driller communicated the instructions to the Day Drilling Supervisor and confirmed the instruction came from the Lead Drilling Supervisor. The instruction "unrestricted" was taken to mean the Driller could pump without any restriction, so he staged up the pumps to 20 bbls/min at which time the incident occurred. Instead of questioning the Lead Drilling Supervisor about the instructions, the Day Drilling Supervisor continued to input his daily completion report.

3. Execution: There was no direct instruction or supervision given to the Driller during the packer fluid displacement. The Day Drilling Supervisor was on the rig floor, but despite making an effort to get the pump rate information, he did not carry through with the task. He also did not give attention to the Driller and work scope as the Driller began the task for packer fluid displacement. The Lead Drilling Supervisor had just sat down to dinner at the time of the incident. The Halliburton Tool Rep and the Consultant Completion Specialist were not on the rig floor during the displacement. Stop Work was not initiated when the information (pump rate) was not provided to the Driller. There was no attempt to take the question off the rig and seek input from the Houston office.

4. Procedures: The procedural step for the packer fluid displacement was written without mention of pump rate or pump pressure. A note warning excessive pressure applied to the fluid loss control valves could cause them to shear and open was made in the procedure, but no direct measurable means of how to accomplish this step were provided. The POA (Plan of Action) included no additional information other than what was carried in the procedure and this lack of detail was not noticed until immediately before the operation was to begin. There was not a robust review process of the POA in place prior to the execution of the operation.

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

- The downhole Equivalent Circulating Density (ECD) unintentionally sheared the upper and lower Fluid Loss Control Devices (FLCD). The unintentional shearing and subsequent opening of the fluid loss control devices resulted in cross flow between the completed intervals.

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

- The Lead Drilling Supervisor instructed the driller there were no pumping restrictions and to just watch the wellhead pressure.
- The Haliburton Tool Representative and the Consultant Completion Specialist were not

on the rig floor during the displacement.

- The procedural step for packer fluid displacement was written without mention of pump rate or pump pressure.

20. LIST THE ADDITIONAL INFORMATION:

N/A

21. PROPERTY DAMAGED:

NATURE OF DAMAGE:

N/A

Underground blowout

ESTIMATED AMOUNT (TOTAL): \$40,000

22. RECOMMENDATIONS TO PREVENT RECURRANCE NARRATIVE:

The BSEE New Orleans District has no recommendations for 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:

28. ACCIDENT CLASSIFICATION:

29. ACCIDENT INVESTIGATION

PANEL FORMED: NO

26. INVESTIGATION TEAM MEMBERS:

OCS REPORT:

Frank Musacchia /

30. DISTRICT SUPERVISOR:

27. OPERATOR REPORT ON FILE:

David Trocquet

APPROVED

DATE:

09-JAN-2022