

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: 16-NOV-2022 TIME: 0510 HOURS

2. OPERATOR: Woodside Energy (Deepwater) Inc.

REPRESENTATIVE:
TELEPHONE:
CONTRACTOR:
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: G36191

AREA: EB LATITUDE:
BLOCK: 699 LONGITUDE:

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

5. PLATFORM:
RIG NAME: DIAMOND OFFSHORE WEST VELA

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

9. CAUSE:

7. TYPE:

INJURIES:

- HISTORIC INJURY
 - REQUIRED EVACUATION
 - LTA (1-3 days)
 - LTA (>3 days)
 - RW/JT (1-3 days)
 - RW/JT (>3 days)
 - FATALITY
 - Other Injury
- OPERATOR CONTRACTOR

- 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

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

- 10. WATER DEPTH: 3086 FT.
- 11. DISTANCE FROM SHORE: 146 MI.
- 12. WIND DIRECTION:
SPEED: M.P.H.
- 13. CURRENT DIRECTION:
SPEED: M.P.H.
- 14. SEA STATE: FT.
- 15. PICTURES TAKEN:
- 16. STATEMENT TAKEN:

On November 16th, 2022, at 05:11 AM an incident occurred on Diamond Offshore's drillship West Vela, working under contract for Woodside Energy (Deepwater) Inc. Exploration operations were being conducted at East Breaks Block 699, Lease G-36191, well 001. The incident was reported as a discharge of approximately twelve barrels of Synthetic Based Mud (SBM) into the Gulf of Mexico via the Managed Pressure Drilling (MPD) systems, Pressure Relief Valves (PRV). Due to a saltwater influx into the well.

On November 16th, 2022, at 05:11 AM, Woodside Energy Inc. was drilling the 12-1/4 inch hole section at approximately 25,000 feet when a saltwater kick occurred just below the base of salt. First, the MPD system was put into Flow Control mode. Next the Surface Back Pressure (SBP) in the MPD system increased to over 1,300 psi exceeding the 1,300 psi PRV setting for the MPD system. The flow path from the PRV's was diverted overboard. Also, when the PRV's set point is exceeded the MPD system reverts to "Manual Mode". The MPD pressure control valves were then shut by the MPD operator, and the well was shut in by the driller using the Blowout Preventor's (BOP) upper annular. At 05:20 AM the well was completely shut in and the shut-in drill pipe pressure was 1,600 psi. Woodside Energy estimates the total influx from the kick was fifty-eight barrels. The kick was successfully circulated out using the Drillers Method. Drilling fluid returns were examined by the Mud Engineer, and the evidence indicated a saltwater kick without hydrocarbons. The SBM that was released from the MPD system was sent to the MPD diverter valve and directly overboard into the Gulf of Mexico.

An onsite investigation was conducted on December 5th, 2022, by the Bureau of Safety and Environmental Enforcement (BSEE) Lake Jackson District Accident Investigator (AI). The Woodside Energy Drilling Supervisor was interviewed, and he stated the drilling crew responded appropriately to the incident and shut in the well as directed by the onsite well control procedures and according to the MPD plan. The AI reviewed the Drilling Permit, Procedures, Hoodoo EB 699 MPD Plan, MPD assisted shut in with BOP well control procedure and the MPD New Technology Application.

The MPD system is not designed to control any kick or influx greater than five barrels. According to the Hoodoo EB 699 MPD Plan. The MPD plan for the well states any influx greater than 5 barrels must be circulated out through the choke manifold.

The Maximum allowable SBP according to the MPD plan was 1,300 psi. MPD PRV's were set at 1,300 psi.

The MPD diverter valve was lined up to go overboard as opposed to the flowline as shown in the MPD new technology drilling application. The Drilling Supervisor stated in his interview they sent the SBM overboard to avoid gas entering MPD system.

Woodside Energy (Deepwater) Inc. recommendations to prevent recurrence are as follows.

MPD procedures and hole section influx management envelope matrix should include a differential flow threshold to inform the Driller how to respond when using MPD.

When using PCVs for MPD, ensure modeling is performed to determine: 1) optimal PCV setpoints with down hole pumps on based on maximum kick intensity; 2) maximum PCV setpoint based on required SBP for connections with down hole pumps off.

Set maximum PCV pressure to protect against PRVs from opening based on a maximum flow rate for the selected setpoint.

Review FMCA for plugging downstream of the MPD choke to confirm the correct PRV set point should limit system to pressure rating of equipment upstream of the choke.

Review the latest version of the flow control software that responds to influxes in step changes and switches the MPD from Flow Control to SBP mode when the high-pressure limit is reached to allow the chokes to open before the PCV limit is reached.

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

Human performance error

Decision to divert the drilling fluid overboard.

Appendix G.1.5 of the New Technology Application Diamond West Vela East Breaks 699 well 001 rev. 01, shows the flow path going to the flowline during a PRV release.

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

none

20. LIST THE ADDITIONAL INFORMATION:

none

21. PROPERTY DAMAGED:

NATURE OF DAMAGE:

none

ESTIMATED AMOUNT (TOTAL):

22. RECOMMENDATIONS TO PREVENT RECURRANCE NARRATIVE:

The Lake Jackson District has no recommendations 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:

06-DEC-2022

26. Investigation Team Members/Panel Members:

29. ACCIDENT INVESTIGATION PANEL FORMED:

Perry Brady /

NO

27. OPERATOR REPORT ON FILE:

OCS REPORT:

30. DISTRICT SUPERVISOR:

Stephen P. Martinez

APPROVED

DATE:

06-FEB-2023