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: **27-FEB-2021** TIME: **1330** HOURS
2. OPERATOR: **BP Exploration & Production Inc.**
   REPRESENTATIVE:
   TELEPHONE:
   CONTRACTOR: **Diamond Offshore Drilling, Inc.**
   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:

4. LEASE: **G34561**
   AREA: **GC** LATITUDE:
   BLOCK: **821** LONGITUDE:

5. PLATFORM:
   RIG NAME: **DIAMOND OCEAN BLACKHORNET**

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

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		

   - [X] POLLUTION
   - [ ] FIRE
   - [ ] EXPLOSION

   LWC
   - [ ] HISTORIC BLOWOUT
   - [ ] UNDERGROUND
   - [ ] SURFACE
   - [ ] DEVERTER
   - [ ] SURFACE EQUIPMENT FAILURE OR PROCEDURES

   COLLISION [ ] HISTORIC [ ] >$25K [ ] <=$25K

8. OPERATION:
   - [ ] PRODUCTION
   - [X] DRILLING
   - [ ] WORKOVER
   - [ ] COMPLETION
   - [ ] HELICOPTER
   - [ ] MOTOR VESSEL
   - [ ] PIPELINE SEGMENT NO.
   - [ ] OTHER

9. CAUSE:
   - [ ] EQUIPMENT FAILURE
   - [X] HUMAN ERROR
   - [ ] EXTERNAL DAMAGE
   - [ ] SLIP/TRIP/FALL
   - [ ] WEATHER RELATED
   - [ ] LEAK
   - [ ] UPSET H2O TREATING
   - [X] OVERBOARD DRILLING FLUID
   - [X] OTHER **13 BBLS of SOBM**

10. WATER DEPTH: **4108** FT.
11. DISTANCE FROM SHORE: **110** MI.
12. WIND DIRECTION: **SSW**
    SPEED: **17** M.P.H.
13. CURRENT DIRECTION: **SSW**
    SPEED: M.P.H.
14. SEA STATE: **4** FT.
15. PICTURES TAKEN:
16. STATEMENT TAKEN:

On February 27, 2021, an incident occurred on the Diamond Ocean Black Hornet which was working under contract for BP Exploration & Production Inc. Drilling operations were being conducted at Green Canyon Block 821 OCS-G34561 Well 002. There was an unintentional discharge of approximately 13 barrels of synthetic oil-based mud (SOBM) into the Gulf of Mexico due to a valve misalignment at the mud mix manifold while attempting to transfer wash water overboard.

On the morning of February 27, 2021, the off duty Derrickhands (crew 1) prepared a Job Safety Analysis (JSA) in preparation to discharge wash water overboard from the #17 mud pit. Also that day, the on duty Derrickhands (crew 2) needed to increase the mud weight in the #11 and #13 active mud pits. They activated the #1 mud mixing pump to circulate the mud while increasing the fluid weight. At 12:00 hours there was a tour change and the mixing pump was left on to continue circulating the fluid in the pits. The crew 2 Derrickhands communicated to their relief (crew 1) the current operation with handover logs and verbal notifications. With the mud mixing pump already lined up on the #11 and #13 active mud pits, the crew 1 Derrickhands proceeded to line up the valves on the mud mixing manifold to discharge the wash water overboard. The procedure called for the wash water to be pumped overboard using the #1 mud mixing pump after the overboard discharge valve was opened. With the mud mixing pump still circulating the mud in the #11 and #13 active mud pits, the overboard discharge valve was opened and the Driller noticed a volume loss in the #11 and #13 active mud pits. He notified the crew 1 Derrickhands and they immediately started looking for the issue. They referenced the mud monitoring screen and shut down the #1 mud mixing pump and closed the discharge valve, but not before discharging 13 barrels of SOBM into the Gulf of Mexico.

The Bureau of Safety and Environmental Enforcement (BSEE) Inspectors conducted an onsite inspection and investigation on March 10, 2021 and collected documentation for the incident. It was determined that approximately 13 barrels of 14.7 pounds per gallon (PPG) SOBM was discharged into the Gulf of Mexico due to an incorrect valve line up. Of the 13 barrels of SOBM, 6.24 barrels was comprised of synthetic oil. The investigation revealed that the #1 mud mixing pump was left on by the crew 2 Derrickhands when they went off tour. During the tour change meeting, one of the crew 1 Derrickhands one was informed that the #1 mud mixing pump was still circulating the #11 and #13 mud pits, and the other was informed that the mud weight was increased but not specifically told that the #1 mud mixing pump was still running. The mixing pump activation was not listed in the daily handover logs given to either of the crew 1 Derrickhands coming on tour. After the Derrickhands discussed which valves to open and who was going to manipulate each valve, the process started. The Driller instantly noticed mud volume losses in the #11 and #13 mud pits after they opened the overboard discharge valve and he notified the Derrickhands. Moments after speaking with the Derrickhands, one proceeded to the mud monitoring screen in the mud pit room and turned the #1 mud mixing pump off while the other closed the overboard discharge valve. They strapped the #11 and #13 mud pits to determine the amount of SOBM discharged overboard, which was found to be 13 barrels.

The investigation determined the primary cause of this discharge was improper valve alignment and failure to follow procedures. The crew 1 Derrickhands failed to properly check the mud system and valve alignments prior to opening the overboard discharge valve. Poor communication during tour change also contributed to this discharge. The Diamond Offshore Transfer Permitted Fluid Overboard procedure states to double check the line up by walking the line to confirm appropriate valves are open and others are closed prior to opening the overboard discharge valve. Diamond Offshore has revised and implemented their Job Safety Analysis (JSA) and the Site-Specific Plan (SSP), adding a Fluid Transfer Pre-Checklist that includes a step to ensure both mud mixing pumps are switched off prior to the valve alignment. Also, a documented discussion was held with the on and off tour Derrickhands about the job

expectations, highlighting the importance of having the proper line-up checks and preparing accurate handover notes at tour changes.

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

Improper valve alignment allowed SOBM to be discharged into the Gulf of Mexico. Failure to follow procedure for transferring permitted fluid overboard.

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

Inadequate communication between tour change.

20. LIST THE ADDITIONAL INFORMATION:

The Mud Engineer performed a static sheen test as required prior to discharging the wash water in the #17 mud pit with no abnormalities noted.

21. PROPERTY DAMAGED: **N/A**

NATURE OF DAMAGE: **N/A**

ESTIMATED AMOUNT (TOTAL): **$**

22. RECOMMENDATIONS TO PREVENT RECURRANCE NARRATIVE:

BSEE Houma District has no recommendations for the Office of Incident Investigations at this time.

23. POSSIBLE OCS VIOLATIONS RELATED TO ACCIDENT: **YES**

24. SPECIFY VIOLATIONS DIRECTLY OR INDIRECTLY CONTRIBUTING. NARRATIVE:

2 INC's issued for this incident:

E-100 On February 27th, 2021 Operator inadvertently discharged 13 bbls of synthetic oil-based mud (6.24 pure base oil) into the Gulf of Mexico.

G-110 On February 27th, 2021, while conducting operations to dispose wash water from pit # 17 overboard, Operator failed to operate in a safe manner, resulting in a non-permitted discharge of approximately 6.24 bbls of base oil into the Gulf of Mexico.

25. DATE OF ONSITE INVESTIGATION: **10-MAR-2021**

26. INVESTIGATION TEAM MEMBERS: **Tim Boudreaux / Cedric Bernard / Paul Reeves - author /**

27. OPERATOR REPORT ON FILE:

28. ACCIDENT CLASSIFICATION:

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

OCS REPORT:

30. DISTRICT SUPERVISOR: **Amy Pellegrin**

APPROVED DATE: **11-JUN-2021**