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: **29-OCT-2021** TIME: **1000** HOURS
2. OPERATOR: **Shell Offshore Inc.**
   REPRESENTATIVE:
   TELEPHONE:
   CONTRACTOR: **Helmerich & Payne**
   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: **G17565**
   AREA: **AC** LATITUDE:
   BLOCK: **857** LONGITUDE:

5. PLATFORM: **A(Perdido)**
   RIG NAME: **H&P 205**

6. ACTIVITY:
   - [ ] EXPLORATION(POE)
   - [X] 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
   - [ ] OVERBOARD DRILLING FLUID
   - [ ] OTHER _____

10. WATER DEPTH: **7835** FT.
11. DISTANCE FROM SHORE: **140** MI.
12. WIND DIRECTION: **NNW**
    SPEED: **17** M.P.H.
13. CURRENT DIRECTION:
    SPEED: M.P.H.
14. SEA STATE: **2** FT.
15. PICTURES TAKEN:
16. STATEMENT TAKEN:

On 29 October 2021, at approximately 10:00 hours, an unplanned release of 65 barrels of Synthetic Based Mud (SBM) occurred at Shell Offshore Inc.'s (Shell) Outer Continental Shelf G-17585, Alaminos Canyon Block 857, Helmerich & Payne (H&P) 205 Platform Rig.

On 29 October 2021, at approximately 09:10 hours, following a discussion between the Drilling Crew and the Mud Engineer about the need to reconstitute the SBM, the Pit-hand began preparing to roll the contents of the auxiliary mud tanks (4 total). The Pit-hand and a Roustabout assigned to assist in completing the task performed a pre job safety meeting which included reviewing a Job Safety Analysis (JSA) for this specific task. The Pit-hand was positioned on the main deck at the control panel for the auxiliary mud tanks, and the Roustabout was positioned on the top level of the auxiliary mud tanks to confirm mud returns to the selected tank. After completing the reconditioning of the auxiliary mud tank #1, the Pit-hand lined up the valves, which should have consisted of opening the suction and discharge valves on auxiliary mud tank #2 and closing the suction and discharge valves on auxiliary mud tank #1 and activating the transfer pump. Upon rolling the contents of auxiliary mud tank #1, the Pit-hand turned off the transfer pump and simultaneously began closing valves on auxiliary mud tank #1. The transfer pump was then aligned to auxiliary mud tank #2 in preparation of rolling the contained SBM. During the process of lining up on auxiliary mud tank #2, the air control for the discharge valve located on the auxiliary mud tank control panel malfunctioned and did not open the valve. The Pit-hand went to the top of auxiliary mud tank #2 and manually opened the discharge valve. The Pit-hand then returned to the auxiliary mud tank control panel and began rolling auxiliary mud tank #2. The Roustabout confirmed SBM returns coming into the auxiliary mud tank #2. After approximately three minutes of rolling auxiliary mud tank #2, the Assistant Driller (AD) was alerted to a high-level alarm and noticed a gain in auxiliary mud tank #2. The AD called the Pit-hand to "all stop" due to gains identified in auxiliary mud tank #2. The Pit-hand stopped the transfer pump and began investigating source of the gains. At approximately the same time, the Production Control Room Operator for the platform notified the rig floor of a high-level alarm in the drilling sump oil compartment. The Pit-hand identified the cause of the gain to be the suction valve on auxiliary mud tank #1, which was accidentally left in the open position instead of in the closed position. This allowed the fluid to be pumped from both auxiliary mud tank #1 and auxiliary mud tank #2 back into only the auxiliary mud tank #2. The excess fluid was approximately 119 barrels which went to the overflow line and flowed into the drilling sump. The auxiliary mud tanks #1 and #2's overflow alarm failed to function. The AD notified the Tool-Pusher (TP) of the tank volumes, and the current volume was 119 barrels lower than when they started rolling auxiliary mud tank #2. The TP instructed the AD to measure the fluid levels in the drilling sump (strap the tanks). After measuring the fluid level in the drilling sump which now contained 54 barrels of SBM, it was estimated that 65 barrels of SBM was released into the Gulf of Mexico. The discharge path was through the drilling sump and out the cuttings chute discharge point located 515 feet below the water surface. Personnel were dispatched to survey around the platform, but no sheens were observed.
At 13:20 hours, a rig-based investigation was initiated by the Lessee.
The rig-based investigation team consisted of the following rig personnel.

1. **H&P Rig Manager**
2. **Shell Drilling Foreman**
3. **Shell Production Health, Safety, and Environment Specialist**
4. **H&P Health, Safety, and Environment Specialist**
5. **Safety Paramedic**

The rig-based investigation identified the need to institute the following action items.

1. Update all fluid transfer JSAs to include job step sequence for performing the two-person verification of valve alignment.
2. Update all fluid transfer JSAs to include in the job step for aligning the valves to read “Align transfer valves for tank and pit as per the rig specific transfer procedure.”
3. Identify and update the rig specific transfer book to include procedures for rolling each specific tank, pit, and pump.
4. Rig leadership will set expectations for Derrickman or higher to perform valve alignment verification.
5. Troubleshoot and repair audible alarm system on the auxiliary tanks.
6. Research and install visual level indicators either mechanical or technological at the valve control panel.

BSEE Investigation
On 23 November 2021, the Bureau of Safety and Environmental Enforcement (BSEE) conducted an on-site investigation. The investigation included the following:

1. A visual inspection of the auxiliary mud tanks, auxiliary mud tank controls, the drilling sump, and associated piping.
2. Conducted in-person interviews with Rig Supervisor, Pit-hand, Company Representative (None of which were on location during the incident).
Reviewed original documentation which consisted of JSA, Daily Reports, Equipment Diagrams, and Equipment Schematics.

BSEE found the cause of the unplanned release of 65 barrels of SBM was due to “Human Error.” The Pit-hand failed to verify proper valve positions for the intended job task which caused the overflow condition and pollution event.

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

The incident occurred because the Pit-hand did not close and verify the valve alignment on the #1 auxiliary mud tank suction valve before actuating the pump. The provided JSA recommended a two-person verification for valve line ups which was not adhered to.

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

1. Lessee did not have a specific, documented procedure for rolling the auxiliary mud tanks.
2. JSA did not reference available fluid transfer procedure. Crew did not review fluid transfer procedure.
3. Pit-hand was new to the position (two months) and lacked experience.
4. The auxiliary mud tanks’ audible overflow alarm failed to actuate. There is no level indicator on the auxiliary mud tank control panel nor is there a sight glass or visual indicator on the auxiliary mud tanks.
5. Due to a lack of maintenance, the air actuated valves failed to operate. The Pit-hand had to manually operate at least one valve.
6. Shell management has reduced crew onboard when compared to historic crew capacity.

20. LIST THE ADDITIONAL INFORMATION:

1. Incident was reported to BSEE on 2 November 2021. Lead Drilling Foreman on the H&P 205 contacted Shell Environmental Engineer at 13:20 on 29 October 2021.
2. NTL 2019-N05 States “Pursuant to 30 CFR 250.187(d) and 30 CFR 254.46(b), you must orally notify the BSEE Regional Supervisor without delay if you have (or think you have) a spill of oil or other liquid pollutant from your facility of one barrel or more and provide a written follow-up report to the Chief of the Oil Spill Preparedness

Division (OSPD) within 15 days after the spillage has been stopped.

21. PROPERTY DAMAGED: NATURE OF DAMAGE:

None

ESTIMATED AMOUNT (TOTAL):

22. RECOMMENDATIONS TO PREVENT RECURRANCE NARRATIVE:

1. Update all fluid transfer JSAs to include job step sequence for performing the two-person verification of valve alignment.
2. Update all fluid transfer JSAs to include in the job step for aligning the valves to read “Align transfer valves for tank and pit as per the rig specific transfer procedure.”
3. Identify and update the rig specific transfer book to include procedures for rolling each specific tank, pit, and pump.
4. Rig leadership will set expectations for Derrickman or higher to perform valve alignment verification.
5. Troubleshoot and repair audible alarm system on the auxiliary mud tanks.
6. Research and install visual level indicators either mechanical or technological at the valve control panel.

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

24. SPECIFY VIOLATIONS DIRECTLY OR INDIRECTLY CONTRIBUTING. NARRATIVE:

1. E-100
Lessee failed to prevent unauthorized discharge of pollutants into offshore waters. On November 2 2021, Lessee notified the Lake Jackson District of an unauthorized Synthetic Based Mud (SBM) discharge of approximately 65 barrels, which occurred on October 29th, 2021. At approximately 0910 a.m., the rig crew was rolling the SBM auxiliary tanks and inadvertently left a valve open causing an overflow condition in in auxiliary tank #2. The overflow in tank #2 caused an overflow in the drilling sump and was released to the environment, via the cutting chute approximately 515’ below the sea surface.
2. E-841
Lessee failed to report without delay as stated in 30CFR254.46. On November 2 2021, Lessee notified BSEE of an unauthorized Synthetic Based Mud discharge of approximately 65 barrels that occurred on October 29th, 2021. Incident occurred at 09:10 a.m. Lessee's Lead Foreman notified the Lessee's Environmental Engineer at 01:30 p.m. on the 29th of October 2021. Pursuant to 30 CFR 250.187(d) and 30 CFR 254.46(b), you must orally notify the BSEE Regional Supervisor without delay if you have (or think you have) a spill of oil or other liquid pollutant from your facility of one barrel or more and provide a written follow-up report to the Chief of the Oil Spill Preparedness Division (OSPD) within 15 days after the spillage has been stopped. BSEE and the National Response Center was notified 4 days after the incident occurred.

25. DATE OF ONSITE INVESTIGATION:

28. ACCIDENT CLASSIFICATION:

26. INVESTIGATION TEAM MEMBERS:

Perry Brady /

27. OPERATOR REPORT ON FILE:

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

OCS REPORT:

30. DISTRICT SUPERVISOR:

Stephen P Martinez