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: **17-JUL-2021** TIME: **1030** HOURS

2. OPERATOR: **Shell Offshore Inc.**
   REPRESENTATIVE: **Lino, Lynn**
   TELEPHONE:
   CONTRACTOR: **Transocean Offshore**
   REPRESENTATIVE:
   TELEPHONE:

- [ ] STRUCTURAL DAMAGE
- [ ] CRANE
- [ ] OTHER LIFTING
- [ ] DAMAGED/DISABLED SAFETY SYS.
- [X] INCIDENT >$25K **Vessel Electrical System/LMRP**
- [ ] H2S/15MIN./20PPM
- [ ] REQUIRED MUSTER
- [ ] SHUTDOWN FROM GAS RELEASE
- [X] OTHER **Total Power Loss**

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

4. LEASE: **G19409**
   AREA: **AC** LATITUDE:
   BLOCK: **815** LONGITUDE:

5. PLATFORM:
   RIG NAME: **T.O. DEEPWATER PONTUS**

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		

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

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

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

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

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

10. WATER DEPTH: **9352** FT.
11. DISTANCE FROM SHORE: **159** 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 July 17, 2021 at approximately 10:30 hours, Shell Offshore (Shell) had an incident onboard the Transocean Offshore Deepwater Pontus Drillship (Vessel) while conducting well operations on the SA 008 Well located in Alaminos Canyon (AC) block 815, Lease OCSG19409. The Incident involved The Drillship's total Loss of Power, the implementation of the Emergency Disconnect System/Sequence (EDS) and the intentional disconnect of the Lower Marine Riser Package (LMRP) from the subsea BlowOut Preventer (BOP). There were no injuries and no pollution occurred; however, there was damage to the Vessel's power distribution system and the LMRP. On July 28, 2021, U.S. Coast Guard (USCG) and Bureau of Safety and Environmental Enforcement (BSEE) Investigators performed an onsite investigation onboard the Vessel. The USCG lead the investigation involving the Vessel's Loss of power. BSEE lead the investigation involving the Emergency Disconnect from the SA 008 Well.

On July 17, 2021, the well operation's crew was conducting well completion operations onboard the Vessel while latched up to the SA 008 Well. The lower completion assembly had been installed with a gravel pack packer and tested Formation Isolation Valve (FIV) in place. All hydrocarbon zones were mechanically isolated. Shell reported that at approximately 10:30 hours, while running into the riser with the upper completion assembly, the Vessel experienced complete loss of power and began to drift. The Vessel's Crew unsuccessfully attempted to regain power as the Vessel drifted. As nothing was across the Subsea BOP stack, the Drilling Supervisor made the decision to close the Blind Shear Rams to secure the well with two barriers. Upon drifting closer to established upper limits for safe station keeping protocols, the Red Safety Zone, the Driller commanded the activation of the Emergency Disconnect System/Sequence (EDS). The EDS operated as designed with the LMRP unlatching from the Subsea BOP within 35 seconds of activation of the sequence. After disconnection from the subsea well, the Vessel continued to drift with the riser and LMRP suspended in the water column. While drifting, the LMRP began to drag on the seafloor due to uneven seafloor contour.

The Vessel's Chief Electrician found the low voltage breakers were tripped and performed a manual reset of the breakers. With the breakers reset, the Vessel's Power System came back online. The Vessel had drifted approximately 1,000 meters before power was reestablished. With power restored the crew was able to activate and maintain the Dynamic Positioning System (DPS) without further incident.

On July 17, 2021, the Vessel deployed a remotely operated vehicle (ROV) to survey the seafloor assets, and LMRP. Then on July 19th, 2021 The HOS Warland (multipurpose offshore vessel) arrived on location and deployed a second ROV to assist in performing a more extensive site survey. The ROV surveys revealed the LMRP drug along the seafloor for approximately 320 feet. The surveys also confirmed the SA 008 Well remained secure with the subsea BOP activated.

On July 28, 2021, the BSEE Investigator along with the USCG Investigation team performed an onsite investigation onboard the Vessel. BSEE and USCG Investigators surveyed Vessel, received technical briefings, collected documentation, and conducted interviews. While surveying the Vessel's Power Control Room, the Investigators received a briefing on the Power Distribution Control Panel and reviewed actions taken by the Vessel's Crew when the loss of power occurred. The Investigators surveyed the Generator Room and the Power Distribution Panels in the Motor Control Center (MCC) Room. The Investigators observed the new transformers installed in the Power Distribution Panels and examined the failed transformers which were preserved in the Shipping and Receiving Room. The Investigators surveyed both the recovered LMRP (LMRP #2) and the backup LMRP (LMRP #1).

The Shell, Transocean, and Siemens Electric ongoing investigation indicates the loss of power was due to a failure of a 11,000 volt to 110-volt transformer. According to

the investigation, the faulty transformer sent 11,000 volts to ground. The ground fault sensing device then tripped the low voltage breakers to the open position. According to the report, the power distribution system monitors downstream of the low voltage circuit to ensure no interruption of power distribution. When the power generating control safety system sensed zero voltage on the low voltage side, a fault in the system was detected. When the safety system fault was detected, the main circuit opened for all six power generating units. With no electrical power being distributed to the vessel propulsion drives, the vessel began to drift off station.

As the low voltage breaker, being in the open position, was not monitored by the automated power distributing system, the Vessel's Chief Electrician had to visually identify the open breaker to fix the Vessel's power distribution issue. To prevent the incident from reoccurring in the future, Transocean plans to improve the power distributing system to monitor the open or close circuit status of the low voltage breakers.

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

The power loss incident occurred due to transformer failure. When the transformer failed, high voltage transferred to ground. This caused the low voltage breaker to trip into the open position.

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

The Vessel Crew had to visually identify the open breaker to determine the failure because the Automated Power Distribution System did not monitor the breaker position.

20. LIST THE ADDITIONAL INFORMATION:

21. PROPERTY DAMAGED:

Damage to low voltage transformers and Lower Marine Riser Package (LMRP)

NATURE OF DAMAGE:

Transformers damaged beyond repair and LMRP Pod Connectors repaired.

ESTIMATED AMOUNT (TOTAL): **$2,150,000**

22. RECOMMENDATIONS TO PREVENT RECURRANCE NARRATIVE:

Transocean will improve the power distributing system to monitor the open or close circuit status of the low voltage breakers.

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

24. SPECIFY VIOLATIONS DIRECTLY OR INDIRECTLY CONTRIBUTING. NARRATIVE: **None**

25. DATE OF ONSITE INVESTIGATION:

28-JUL-2021

28. ACCIDENT CLASSIFICATION:

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

OCS REPORT:

26. INVESTIGATION TEAM MEMBERS:

Edward Keown /

27. OPERATOR REPORT ON FILE:

30. DISTRICT SUPERVISOR:

Stephen Martinez

APPROVED DATE: **12-JAN-2022**