

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: 06-MAY-2019 TIME: 0748 HOURS

2. OPERATOR: Shell Offshore Inc.

REPRESENTATIVE:
TELEPHONE:

CONTRACTOR:
REPRESENTATIVE:
TELEPHONE:

- STRUCTURAL DAMAGE
- CRANE
- OTHER LIFTING
- DAMAGED/DISABLED SAFETY SYS. Power Loss
- 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: G33733

AREA: MC LATITUDE:
BLOCK: 437 LONGITUDE:

5. PLATFORM: A-Appomattox
RIG NAME:

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

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

7. TYPE:

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

- FATALITY
- POLLUTION
- FIRE
- EXPLOSION

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

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

9. CAUSE:

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

- 10. WATER DEPTH: 7400 FT.
- 11. DISTANCE FROM SHORE: 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:

17. INVESTIGATION FINDINGS:

Investigation Findings:

On 6 May 2019, at 0748 hours, a partial loss of power occurred at Shell Offshore Inc. (Shell) Mississippi Canyon (MC) 437-A (Appomattox) OCS-G 33733 Platform. The platform restored power on 6 May 2019, 0909 hours. The production facility was not producing oil and gas at the time of the power loss. Shell reported no injuries or pollution associated with this incident.

Sequence of Events:

On 6 May 2019, at 0748 hours crew members attempted to swap the generator's fuel from diesel to natural gas. During the swap, the facility lost primary generator power. Next, the Uninterrupted Power Supply (UPS) failed to supply backup power.

The UPS failure caused a shutdown of the fire and gas processor, which prevented the emergency generator from starting. The power loss also affected the facility's Gai-tronics system and alarms. The Offshore Installation Manager (OIM) initiated a safety stand down. He dispatched crew members throughout the facility to communicate the power loss to the 175 persons onboard.

Crew members found that UPS-3451 malfunctioned. They bypassed UPS-3451 and restored power to the Fire and Gas processor, which allowed the emergency generator to start. The UPS remained bypassed and the facility resumed generator fuel swap operations. At 2147 hours, the fuel swapping operations caused another loss of power. However, with UPS-3451 in bypass, the emergency generator restored power within 30 seconds.

On 7 May 2019, a Nolan Power Technician found undersized fuses on the UPS's inverter capacitor bank and damage to the capacitor bank. The technician removed the capacitor bank along with the mounting board. The technician replaced the capacitor bank to restore UPS-3451.

BSEE Investigation:

On 14 May 2019, a team consisting of one Bureau of Safety and Environmental Enforcement (BSEE) investigator and one United States Coast Guard (USCG) member performed an investigation. While onboard, investigators assessed the systems related to the partial loss of power. BSEE and USCG conducted a joint investigation per MOA OCS-05.

At the time of the loss of power, MC 437-A Appomattox platform had not commenced first oil production to the facility. The BSEE investigator verified that the Emergency Shutdown (ESD), all the subsea wells, Surface Controlled Subsurface Safety Valves (SCSSVs), Shutdown Valves (SDVs), and Boarding Shutdown Valves (BSDVs) would have functioned as per the approved Deepwater Operation Plan (DWOP).

Conclusion:

Shell's root cause analysis (RCA), found that a turbine generator trip and failure of the UPS-3451 caused the partial loss of power. The emergency generator could not start without power to the fire and gas processor. The UPS system failed due to shorted capacitors and undersized fuses on the inverter capacitor bank. The BSEE investigation team accepts these findings. BSEE also found that Shell had proper expertise and documentation on the platform to respond to the incident.

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

Equipment failure - Flawed equipment design: The UPS system failed due to shorted capacitors and undersized fuses on the inverter capacitor bank

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

Equipment Failure - Flawed equipment construction: Generator swapping operations caused the loss of normal power on the facility.

20. LIST THE ADDITIONAL INFORMATION:

21. PROPERTY DAMAGED:

NATURE OF DAMAGE:

ESTIMATED AMOUNT (TOTAL):

22. RECOMMENDATIONS TO PREVENT RECURRENCE 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:

None

25. DATE OF ONSITE INVESTIGATION:

28. ACCIDENT CLASSIFICATION:

16-MAY-2019

26. INVESTIGATION TEAM MEMBERS:

29. ACCIDENT INVESTIGATION

Pierre Lanoix (AI Specialist) /

PANEL FORMED: **NO**

OCS REPORT:

30. DISTRICT SUPERVISOR:

David Trocquet

27. OPERATOR REPORT ON FILE:

APPROVED

DATE:

26-AUG-2019