1. OCCURRED
   DATE: 11-SEP-2016  TIME: 1030  HOURS

2. OPERATOR: Shell Offshore Inc.
   REPRESENTATIVE:  
   TELEPHONE:  
   CONTRACTOR:  
   REPRESENTATIVE:  
   TELEPHONE:  

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

4. LEASE: G21861
   AREA: WR  LATITUDE:  
   BLOCK: 551  LONGITUDE:  

5. PLATFORM:  
   RIG NAME:  

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

7. TYPE:
   HISTORIC INJURY
   REQUIRED EVACUATION 2
   LTA (1-3 days)  
   LTA (>3 days) 2
   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

8. CAUSE:
   EQUIPMENT FAILURE
   HUMAN ERROR
   EXTERNAL DAMAGE
   SLIP/TRIP/FALL
   WEATHER RELATED
   LEAK
   UPSET H2O TREATING
   OVERBOARD DRILLING FLUID
   OTHER

9. WATER DEPTH: 9490 FT.

10. DISTANCE FROM SHORE: 163 MI.

11. WIND DIRECTION:
    SPEED: M.P.H.

12. CURRENT DIRECTION:
    SPEED: M.P.H.

13. SEA STATE: FT.
At approximately 1016 hours on September 11, 2016, a pressurized steam release from Boiler No.1 occurred on the Floating Production Storage and Offloading (FPSO) vessel Turritella. The FPSO is located at Walker Ridge 551-A, OCS-G 21861 (Stones development). The operator of record is Shell Offshore, Inc. During the steam release incident, two personnel received moderate to severe burns, were treated onsite, and were then medevaced to the nearest land-based hospital. At the time of the incident, the Port Side Boiler No.2 piping pressure and temperature were approximately 227 pounds per square inch (psi) at 428 degrees Fahrenheit. The steam release and injuries to personnel from the valve on Boiler No.1 were directly related to Boiler No.2 at the time of the incident.

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

During normal operations, maintenance personnel were instructed to repair a steam leak on the Primary Steam Valve (Valve 1) on Auxilliary Boiler No. 1. During the operation, it was determined that Valve 1 was not leaking, and after consulting with the Assistant Maintenance Supervisor, a decision was made to repair a leak on the Warming Through Valve (Valve 4). This was done without consulting the Engine Room Supervisor about the change in job task. After repairs to Valve 4 were nearly complete, a maintenance worker asked the Assistant Maintenance Supervisor if they could also change the packing on the Secondary Steam Valve (Valve 2). The Assistant Supervisor told him to check the storage room to see if they had the proper packing size. Once the worker retrieved the packing, he proceeded to the Engine Room Supervisor for permission to change out the valve packing. Assuming the work was being performed on Valve 1, the Engine Room Supervisor gave him approval. The two maintenance workers then proceeded to remove the old packing from Valve 2, when the steam escape incident occurred, injuring both personnel. Neither supervisor was at the worksite when the incident occurred; however the Assistant Supervisor did periodically check on the maintenance crew during repairs on Valve 4.

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

Factors that may have contributed to the incident include: (1) a lack of communication between supervisors and maintenance crew and (2) a failure to revisit Task Risk Assessments, Tool Box Talks, Cold/Hot Work Permits, and Stop Work Authority when the job task changed. Both the Cold Work Permit (CWP) and the Task Risk Assessment were generic and, according to the Shell INC G-110 response, "included risks that were not relevant to the task and that did not include the steam hazard." For example, a CWP was issued to "[r]epair leak on steam line for Main Boiler #1." The CWP did not mention potential hazards to personnel repairing a valve on out-of-service Boiler No. 1, which was interconnected with in-service and functioning Boiler No. 2. (Note: Neither of the two injured personnel were involved with the CWP prior to work on Boiler No. 1.)

20. LIST THE ADDITIONAL INFORMATION:
21. PROPERTY DAMAGED: N/A
   NATURE OF DAMAGE: N/A

ESTIMATED AMOUNT (TOTAL):

22. RECOMMENDATIONS TO PREVENT RECURRANCE NARRATIVE:
   The Houma District has no recommendations for Office of Incident Investigations.

23. POSSIBLE OCS VIOLATIONS RELATED TO ACCIDENT: YES

24. SPECIFY VIOLATIONS DIRECTLY OR INDIRECTLY CONTRIBUTING. NARRATIVE:
   G110: "Does the Lessee perform all operations in a safe and workmanlike manner and
   provide for the preservation and conservation of property and the environment?" The
   operator is not performing all operations in a safe and workmanlike manner. On
   September 11, 2016 an incident occurred while personnel were working on the
   auxiliary boiler No.1 (starboard). After completing work on two valves, the
   operators attempted to change packing in a 3rd valve without realizing the back
   side of the valve was holding back pressurized high temperature steam causing burn
   injuries to both personnel. After receiving medical aid the injured personnel were
   medivaced to the nearest land based hospital. Note: At the time of the incident the
   port side boiler No.2 and associated piping pressure and temperature was
   approximately 227 psi at 428°F.

25. DATE OF ONSITE INVESTIGATION: 29-SEP-2016

26. ONSITE TEAM MEMBERS:
   Keith Barrios/ Terry Hollier/ Amber Wyatt

27. OPERATOR REPORT ON FILE: NO

28. ACCIDENT CLASSIFICATION: MINOR

29. ACCIDENT INVESTIGATION PANEL FORMED: NO
   OCS REPORT:

30. DISTRICT SUPERVISOR:
    Bryan A. Domangue

21-DEC-2016