For Public Release

ACCIDENT INVESTIGATION REPORT

1. OCCURRED
   DATE: 23-JUN-2014 TIME: 1030 HOURS

2. OPERATOR: Arena Offshore, LP
   REPRESENTATIVE: 
   TELEPHONE: 
   CONTRACTOR: ISLAND OPERATORS CO. INC.
   REPRESENTATIVE: 
   TELEPHONE: 

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

4. LEASE: G10638
   AREA: EC LATITUDE: 
   BLOCK: 328 LONGITUDE: 

5. PLATFORM: B
   RIG NAME: 

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

7. TYPE:
   HISTORIC INJURY
   REQUIRED EVACUATION 1
   LTA (1-3 days)
   LTA (>3 days)
   RW/JT (1-3 days)
   RW/JT (>3 days)
   Other Injury
   HUMAN ERROR
   EXTERNAL DAMAGE
   SLIP/TRIP/FALL
   WEATHER RELATED
   LEAK
   OVERBOARD DRILLING FLUID
   OTHER

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

9. WATER DEPTH: 243 FT.

10. DISTANCE FROM SHORE: 96 MI.

11. WIND DIRECTION: SW
    SPEED: 7 M.P.H.

12. CURRENT DIRECTION: NE
    SPEED: 3 M.P.H.

13. SEA STATE: 2 FT.

14. PICTURES TAKEN: YES

15. STATEMENT TAKEN: YES
17. INVESTIGATION FINDINGS:

On June 23, 2014, an incident occurred at approximately 10:30 A.M. on the Arena Offshore East Cameron 328 B facility which resulted in a pollution event and injury to an operator (IP). The IP was also the platform's person in charge (PIC). At the time of the incident, the IP was attempting to replace the pneumatic temperature controller (TC) on Heater Treater #2 NBK-2770 (vessel). The TC was threaded directly into a thread-o-let within the liquid medium of the vessel instead of being installed inside a thermo-well as recommended by the manufacturer. The vessel normally operates at approximately 40 pounds per square inch (psi) and 150 degrees Fahrenheit. There were six persons on board the facility, including one field oreman, four operators, and one electrician.

On June 24, 2014, the BSEE Lake Charles District conducted an onsite accident investigation and learned that operations personnel experienced problems with the vessel's TC maintaining a stabilized temperature on June 22, 2014. As a result of the temperature instability, the vessel's liquid medium temperature safety high (TSH) sensor activated a shut-in action of fuel and inflow of fluids. Again on June 23, 2014, the vessel's TSH activated due to temperature instability and operations personnel deemed it necessary to replace the faulty TC. Approximately two hours after the TSH activated, with the vessel's heat source shutdown and the liquid inlets and outlets blocked off, the IP began removing the TC. However, the vessel was not depressurized and the hot oil was not drained to a safe level below the TC. Once the TC was completely removed from the thread-o-let, hot pressurized oil blew out of the one inch opening in the vessel, striking and burning the IP on his left bicep.

Operations personnel then shut-in the rest of the facility by manually actuating an emergency shut-down station. Oil continued to flow out of the one inch thread-o-let, striking the line heater approximately 20 feet across the deck. In an effort to direct the oil into the containment skid beneath the vessel, operations personnel positioned a sheet of plywood in front of the oil stream. Once the pressurized flow of oil declined, operations personnel installed a one inch nipple and ball valve into the open thread-o-let, isolating the leak. After regaining control of the vessel, operations personnel reported the pollution event (National Response Center Incident Report # 1086799) and made arrangements for the injured operator to be evacuated. Personnel then cleaned themselves up due to being covered in oil, and then began cleaning the facility. A Spill Report Form was submitted showing that 12 gallons of crude oil were discharged into offshore waters and one person sustained a burn injury to his arm due to the incident.

The BSEE investigation findings revealed that the operations personnel took the following precautionary measures in preparation for replacement of the TC: manually blocked the boarding valve on the Vermillion 342 A incoming pipeline, isolated the vessel's liquid dump lines, and isolated the make-up gas to the vessel. The Job Safety Analysis (JSA) for this task identified hazards, including: pressure, temperature, and liquid release; however, the JSA failed to specifically identify the primary potential threat which was the TC not being installed inside a thermo-well. As a result, critical mitigations were not executed prior to removing the TC from the vessel which jeopardized the safety of personnel, production equipment, and the environment. These critical mitigations included: depressurizing the vessel, lowering the liquid levels within the vessel, and allowing sufficient time for cooling.

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

The IP removed the TC prior to depressurizing and lowering the oil level within the vessel.

19. LIST THE CONTRIBUTING CAUSE(S) OF ACCIDENT:
Operations personnel failed to recognize the potential hazards associated with the TC being installed directly into the vessel instead of inside a thermo-well; therefore adequate mitigations were not identified on the JSA and implemented prior to performing the TC replacement.

20. LIST THE ADDITIONAL INFORMATION:

<table>
<thead>
<tr>
<th>Question</th>
<th>Information</th>
</tr>
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<tbody>
<tr>
<td>21. PROPERTY DAMAGED:</td>
<td>N/A</td>
</tr>
<tr>
<td>22. RECOMMENDATIONS TO PREVENT RECURRANCE NARRATIVE:</td>
<td>The Lake Charles District has no recommendations for the Regional Office of Safety Management.</td>
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<tr>
<td>23. POSSIBLE OCS VIOLATIONS RELATED TO ACCIDENT:</td>
<td>YES</td>
</tr>
<tr>
<td>24. SPECIFY VIOLATIONS DIRECTLY OR INDIRECTLY CONTRIBUTING. NARRATIVE:</td>
<td>E-100 A pollution event occurred on June 23, 2014, discharging 12.3 gallons of crude oil into the Gulf of Mexico, during an incident involving the NBK-2770 Heater Treater. G-110 Operations personnel failed to conduct operations in a safe and workmanlike manner which resulted in injury to the PIC and uncontrolled flow of oil into offshore waters on June 23, 2014.</td>
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<tr>
<td>25. DATE OF ONSITE INVESTIGATION:</td>
<td>24-JUN-2014</td>
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<tr>
<td>26. ONSITE TEAM MEMBERS:</td>
<td>Darron Miller / Brandon Rider / Roger Major / Chad Chaffin /</td>
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<td>27. OPERATOR REPORT ON FILE:</td>
<td>YES</td>
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<td>28. ACCIDENT CLASSIFICATION:</td>
<td>MINOR</td>
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<tr>
<td>29. ACCIDENT INVESTIGATION PANEL FORMED:</td>
<td>NO</td>
</tr>
<tr>
<td>30. DISTRICT SUPERVISOR:</td>
<td>Larry Williamson - Distri</td>
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ESTIMATED AMOUNT (TOTAL): $
□ OPERATOR REPRESENTATIVE □ INJURY
□ CONTRACTOR REPRESENTATIVE □ FATALITY
□ OTHER __________________________ □ WITNESS

NAME:
HOME ADDRESS:
CITY: STATE:
WORK PHONE: TOTAL OFFSHORE EXPERIENCE: YEARS

EMPLOYED BY:
BUSINESS ADDRESS:

CITY: STATE:
ZIP CODE:

□ OPERATOR REPRESENTATIVE □ INJURY
□ CONTRACTOR REPRESENTATIVE □ FATALITY
□ OTHER __________________________ □ WITNESS

NAME:
HOME ADDRESS:
CITY: STATE:
WORK PHONE: TOTAL OFFSHORE EXPERIENCE: YEARS

EMPLOYED BY:
BUSINESS ADDRESS:

CITY: STATE:
ZIP CODE:
INJURY/FATALITY/WITNESS ATTACHMENT

☐ OPERATOR REPRESENTATIVE ☐ INJURY
☒ CONTRACTOR REPRESENTATIVE ☐ FATALITY
☐ OTHER ______________________ ☒ WITNESS

NAME:
HOME ADDRESS:
CITY: STATE:
WORK PHONE: TOTAL OFFSHORE EXPERIENCE: YEARS

EMPLOYED BY:
BUSINESS ADDRESS:
CITY: STATE:
ZIP CODE: