

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: 20-JUL-2017 TIME: 1645 HOURS

2. OPERATOR: Arena Offshore, LP

REPRESENTATIVE:

TELEPHONE:

CONTRACTOR:

REPRESENTATIVE:

TELEPHONE:

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

4. LEASE: G03331

AREA: EI LATITUDE:

BLOCK: 251 LONGITUDE:

5. PLATFORM: C

RIG NAME:

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

- STRUCTURAL DAMAGE
- CRANE
- OTHER LIFTING DEVICE **Traveling Block**
- DAMAGED/DISABLED SAFETY SYS.
- INCIDENT >\$25K
- H2S/15MIN./20PPM
- REQUIRED MUSTER
- SHUTDOWN FROM GAS RELEASE
- OTHER

6. OPERATION:

- PRODUCTION
- DRILLING
- WORKOVER
- COMPLETION
- HELICOPTER
- MOTOR VESSEL
- PIPELINE SEGMENT NO.
- 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: 111 FT.

10. DISTANCE FROM SHORE: 54 MI.

11. WIND DIRECTION: SE
SPEED: 4 M.P.H.

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

13. SEA STATE: 1 FT.

At 16:45 hour on 20 July 2017, Arena Offshore, LP (Arena) had a dropped objects incident onboard the drilling rig while conducting drilling operations at Eugene Island (EI) Block 251C. The incident involved drill line that unspooled and detached from the drawworks drum causing the traveling block to descend to the rotary table and approximately 123 feet (ft) of drill line to fall to the rig floor. There were no injuries or structural damage; however, there was damage to the drawworks drum drill line clamp and approximately 123 ft (two sheaves) of drill line during this incident. The drawworks cover guard fell off during the incident and was reinstalled. At 07:21 hour on 21 July 2017, Arena reported the incident to the Bureau of Safety and Environmental Enforcement (BSEE) Lafayette District.

On 19 July 2017, the drill crew began the non-routine task of disassembling the top-drive to install a new motor and transmission. The top-drive was removed leaving the traveling block and compensator that reduced the traveling assembly weight from 80,000 pounds (lbs) to 12,000 lbs. The Driller operated the traveling block on 12 lines without the weight of the top drive or other substantial load. The Driller operated the drawworks brake and controls while utilizing the traveling block and rig up lines to pick up and move the old top-drive motor and transmission to the rig floor port and starboard sides; respectively, without incident.

On 20 July 2017, the Offshore Installation Manager (OIM) was operating the traveling block as it was being lowered to connect to the rig up lines to the new top-drive transmission located at the bottom of the v-door. Due to the stiffness of 1.625-inch drill line and lack of weight to keep these lines stretched, the 7 to 9 wraps on the drawworks drum required to suspend loads became loose. The OIM's use of the traveling block to assist in laying down the motor and transmission loosened the wraps on the drum to a condition where the drill line clamp became exposed to excessive tension and the drill line pulled free from the clamp. When the traveling block was approximately 10 to 20 ft above the rotary, the drill line came out of the drawworks drum clamp and unspooled off the drawworks drum. The traveling block slowly descended landing on the rotary table and two sheaves of drill line (123 ft) fell to the rig floor. The traveling block was held upright by the traveling block dolly on the guide track.

On 21 and 25 July 2017, a BSEE incident investigation team mobilized to the rig and conducted onsite investigations. The BSEE incident investigation team conducted the following activities: 1) gathered all applicable documents; 2) performed written and photo-graphic documentation of the incident scene; 3) conducted a post-incident inspection; 4) documented the Operator's corrective actions; and 5) re-interviewed witnesses to the incident.

On 7 August 2017, Arena issued a Safety Alert on the traveling block dropped incident that summarized the incident investigation findings and recommended actions.

Arena Energy commissioned an independent company to perform a third party investigation on the subject incident with a detailed analysis on the rig clamp utilized. The report stated the following: "The 1-5/8" drill line is very stiff and hard to keep tight when operating on the lower layer wrap of the drum unless a sufficient block load is maintained. Operating the empty travel block on 12 lines (12 lines elevating from the travel block to the crown block) without the top-drive, or a substantial load, will not provide enough line tension to keep the line wrapped tight against the drum. Slacking on and off the drum spool in this condition will cause the drill line to loosen its grip around the circumference of the drum thus exerting excessive load against the drum drill line clamp. The drum drill line clamp is designed to secure the tail end of the line until 6 to 9 wraps are tightly wrapped around the drum and the drill line is kept in tension."

The report indicates improper sized drill line drum clamp and clamp bolts were installed on the drawworks drum. Although records indicate (the designated) correct torque (200 ft-lbs) was applied to the drawworks drum drill line clamp bolts, the investigation report states (due to the clamp bolts and nuts installed during the time of the incident) "a proper torque value would be impossible to maintain when installed and at least one lock nut would not reach its proper position to ensure it could not back off during operation." Operational error does not seem to be evident in the investigative findings. The OIM, operating the traveling block at the time of the incident, performed similar travel block operations as which the driller performed the day before. Based on the MRI incident investigation report, the repetitive drawworks operation (slacking on and off the drum spool) during the time of the incident would have caused the line to loosen its grip around the circumference of the drawworks drum thus exerting excessive load against the drum drill line clamp.

Operational error does not seem to be evident in the investigative findings. The OIM, operating the traveling block at the time of the incident, performed similar travel block operations as the Driller performed the day before. Based on the incident investigation report, the repetitive drawworks operation (slacking on and off the drum spool) during the time of the incident would have caused the drill line to loosen its grip around the circumference of the drawworks drum thus exerting excessive load against the drum drill line clamp.

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

BSEE's incident investigation revealed the primary cause of the incident was attributed to the drill line unspooling from the drawworks drum.

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

The possible contributing causes identified by BSEE for this incident included: 1) failure to prevent the drill line from developing slack on the drawworks drum's bottom layer and unseating from the LeBus grooves; 2) failure to include enough drawworks drum drill line wraps to ensure proper seating on the drum grooves; 3) failure to install the properly sized drill line cable clamp; 4) failure to install proper drum drill line clamp bolts; and 5) failure to identify the hazards in the pre-job job safety analysis of controlling a lighter traveling block load while maintaining drill line tension so that the drill line was properly seated in the drum grooves on the drawworks drum.

The OIM, who was operating the traveling block at the time of the incident, was performing similar travel block operations that the driller performed the day before with the same light block load. The differences in the traveling block operator's capability to operate the drawworks brake to ensure proper fast line tension could have been a contributing cause of the incident. Currently there is no evidence for this case. While evidence does exist that proper slacking on and off the drum spool during the time of the incident would cause the line to loosen its grip around the circumference of the drawworks drum thus exerting excessive load against the drum drill line clamp.

20. LIST THE ADDITIONAL INFORMATION:

21. PROPERTY DAMAGED:

Drawworks drum drill line clamp and
approximately 123 feet of drill line.

NATURE OF DAMAGE:

Drawworks drum dill line clamp broke and
drill line were replaced.

ESTIMATED AMOUNT (TOTAL): \$1,300

22. RECOMMENDATIONS TO PREVENT RECURRENCE NARRATIVE:

Prior to commencing removal of the top-drive from the traveling block, BSEE recommends that operators consider slipping an additional wraps of drill line (above the recommended minimum amount) onto the drawworks drum to prevent the drill line from developing slack on the drum's bottom layer and unseating from the drum grooves due to lack of tension on the fast line.

BSEE recommends operators to consider: 1) verifying the properly sized drawworks drill line clamp is installed with certified bolts; 2) verifying the recertification of the drawworks drum shafts include inspecting the drum drill line clamp as part of their procedure; and 3) incorporating the inspection of the drum drill line clamp to the rig's drawworks preventative maintenance program and the annual lifting gear inspection.

23. POSSIBLE OCS VIOLATIONS RELATED TO ACCIDENT: YES

24. SPECIFY VIOLATIONS DIRECTLY OR INDIRECTLY CONTRIBUTING. NARRATIVE:

Based on the incident investigation findings, a G-110 Incident of Noncompliance (INC) was issued "After the Fact" to document that Arena Offshore (Arena) failed to provide adequate supervision during drilling operations on the jack-up drilling rig on Well C-3 located in Eugene Island Block 251-C.

23. POSSIBLE OCS VIOLATIONS RELATED TO ACCIDENT: YES

24. SPECIFY VIOLATIONS DIRECTLY OR INDIRECTLY CONTRIBUTING. NARRATIVE:

Based on the incident investigation findings, a G-110 Incident of Noncompliance (INC) was issued "After the Fact" to document that Arena Offshore (Arena) failed to provide adequate supervision during drilling operations on the White Fleet Drilling (WFD) 300 jack-up rig on Well C-3 located in Eugene Island Block 251-C.

The G-110 INC was issued to Arena "After the Fact" for the failure to perform drilling operations in a safe and workmanlike manner. On 20 July 2017, while conducting maintenance on the top-drive, the traveling block slowly descended to the rotary table and drill line suddenly fell to the rig floor due to the failure to properly operate the drawworks brake.

25. DATE OF ONSITE INVESTIGATION:

21-JUL-2017

26. ONSITE TEAM MEMBERS:

**Troy Naquin (25-JUL-2017) / Jack
Angelle (21-JUL-2017) / Ernest
Carmouche (21-JUL-2017) / Roy Kuhn
(21-JUL-2017) / Johnny Serrette
(25-JUL-2017) /**

28. ACCIDENT INVESTIGATION

PANEL FORMED: **NO**

OCS REPORT:

29. DISTRICT SUPERVISOR:

Elliott Smith

APPROVED

DATE: **16-OCT-2017**