

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: 28-OCT-2020 TIME: 1144 HOURS

2. OPERATOR: BOE Exploration & Production LLC

REPRESENTATIVE:

TELEPHONE:

CONTRACTOR: Transocean Offshore

REPRESENTATIVE:

TELEPHONE:

- STRUCTURAL DAMAGE
- CRANE
- OTHER LIFTING
- DAMAGED/DISABLED SAFETY SYS.
- INCIDENT >\$25K Rig equipment damage (weather)
- 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: G35879

AREA: GC LATITUDE:

BLOCK: 895 LONGITUDE:

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

5. PLATFORM:

RIG NAME: T.O. DEEPWATER ASGARD

6. ACTIVITY:

- EXPLORATION(POE)
- DEVELOPMENT/PRODUCTION (DOCD/POD)

9. CAUSE:

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

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

POLLUTION

FIRE

EXPLOSION

LWC HISTORIC BLOWOUT

UNDERGROUND

SURFACE

DEVERTER

SURFACE EQUIPMENT FAILURE OR PROCEDURES

10. WATER DEPTH: 5594 FT.

11. DISTANCE FROM SHORE: 136 MI.

12. WIND DIRECTION: SE
SPEED: 152 M.P.H.

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

14. SEA STATE: 30 FT.

15. PICTURES TAKEN:

16. STATEMENT TAKEN:

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

On October 28, 2020, an incident occurred on the Transocean Deepwater Asgard, which was working under contract for Beacon Offshore Energy, LLC (BOE). Drilling operations were being conducted at Green Canyon Block 895, OCS-G35879, Highgarden Well #1, in 5,594 feet of water. The Asgard was forced off location by harsh weather conditions due to an approaching hurricane. After the well was secured and the riser was displaced with seawater, the Emergency Disconnect System (EDS) was executed successfully. However, during this process the riser and Lower Marine Riser Package (LMRP) sustained significant damage. As a result of the storm conditions, the drillship was being pushed in a Northwest direction while its thrusters were at 100 percent power in an effort to maintain well center.

On Saturday, October 24, 2020, Tropical Disturbance #59 slowly approached the Gulf of Mexico from the Caribbean while the Deepwater Asgard drill crew was in the process of tripping drill pipe in the well to set a cement retainer. The cement retainer was set at 26,200 feet to isolate high pressure zones in the wellbore. Once the retainer was cemented in place, the drill crew began to pull out of the hole (POOH) with the drill string. While POOH, the drill crew experienced mechanical problems with the Iron Roughneck (IR), which breaks the connections on the drill string. The IR remained out of service for most of Sunday, October 25th, 2020 until repairs could be made. Meanwhile, Tropical Disturbance #59 developed into a weak Tropical Storm named Zeta and continued to move slowly toward the Gulf of Mexico. Repairs were completed on the IR early Monday morning on October 26th, allowing the drill crew to finish POOH with the drill string. Once the procedure was completed, the drill crew was instructed to make up a drill bit on the bottom hole assembly (BHA) below the Retrievable Test Treat Squeeze packer (RTTS) and trip in the hole (TIH). The RTTS was set at 6,585 feet and a successful positive and negative test were accomplished. On October 27th, Tropical Storm Zeta strengthened to a category 1 Hurricane and entered the Gulf of Mexico with the Asgard in its projected path. The drill crew displaced the riser with seawater and pulled the RTTS running tool out of the hole to prepare to either disconnect from the wellhead or stay connected as the hurricane approached. A conference call between BOE and Transocean was held, and Transocean elected to stay connected to the well because previous sister drillships in similar conditions (Category 1 Hurricane Conditions) rode out storms without issues. On October 28, 2020, Hurricane Zeta's eyewall hit the Asgard, forcing it into the red watch circle. At approximately 09:40 hours, with winds constant at 90 to 100 miles per hour (mph) and sea swells at 30 feet, the EDS was activated successfully and the LMRP cleared the Blow Out Preventers (BOPs) without issue. The derrick wind sensor recorded a peak wind gust of 152 miles per hour (mph) at 10:36 hours as the drillship moved in a Northwest direction after the EDS. The marine riser was damaged when it hit the wave breaker in the moon pool and shortly thereafter the Asgard passed over a ridge of shallower water and the LMRP struck the seafloor, dragging it thru the mud. After traveling approximately 2.5 nautical miles, the Asgard began to maneuver back to the safe zone. The LMRP struck the seafloor for a second time before reaching its destination. Upon arrival, Transocean and BOE began accessing the damages to the drillship and its equipment.

The Bureau of Safety and Environmental Enforcement (BSEE) conducted an onsite investigation on November 4, 2020, which included interviewing personnel and collecting documentation. The investigation team obtained photos and video footage displaying the damage to the marine riser and the LMRP. The documents obtained indicated that the projected storm path was to the East, therefore allowing the Asgard to remain connected to the well. As time progressed, the storm path began to change, and preparations had begun to secure the well. It was also noted in the documents that the IR had broken down multiple times due to mechanical issues, slowing the process of pulling the drill string out of the wellbore. The maintenance issues were finally resolved allowing the drill crew to continue securing the well as the storm was heading directly for the Asgard. The RTTS was set at 6,585 feet and was successfully pressure tested with 15.15 pounds per gallon (PPG) synthetic based mud

(SBM), followed by a successful negative test. The drill crew proceeded to pull the drill string out of the wellbore and commenced displacing the marine riser's 15.15 PPG SBM with 8.6 PPG seawater. With the upper blind shear rams closed and the RTTS set, the drill crew prepared the drill floor for inclement weather which was now Hurricane Zeta. On October 28, 2020, wind speeds became constant at 90 to 100 mph and the seas increased to 30 feet. With these weather conditions, the Asgard was unable to maintain well center location with the thrusters at 100 percent output. At 09:40 hours the Asgard reached the red watch circle which was 159 feet off location. The EDS function was activated from the control panel at the Driller's chair, taking approximately 24 seconds to function. At 170 feet off well center, the disconnect was complete and the subsea crew placed all Air Pressure Vessel (APV) bottles online which increased the tensioner pressure to support the weight of the marine riser and the LMRP. The Asgard began to be pushed in a Northwest direction at a speed of 5.5 mph with thrusters still at 100 percent output. At approximately 10:06 hours, the marine riser impacted the Asgard's hull and by 10:12 hours, the slip joint was fully closed and had locked itself. The subsea team immediately applied the hydraulic locks to keep it locked in place. At 10:36 hours, the derrick wind sensor captured the peak wind gust of 152 mph. At approximately 10:52 hours, the inclinometer marked 15.9 degrees indicating that the LMRP had hit the seafloor, unknown to the drill crew. Finally, at approximately 12:48 hours the Asgard came to a stop, having travelled 1.9 nautical miles from the well location. The Asgard maneuvered back toward the safe zone but in the process the LMRP struck the seafloor again. After evaluating all the damages to the riser and LMRP, it was estimated that the repair and replacement costs would be approximately \$5.7 million dollars.

In the future, if a storm is projected to reach sustained winds equal to or greater than a category 1 Hurricane, BOE will recommend to its rig contractor that they should secure the well, displace the riser to seawater, disconnect from the well and pull a specified length of riser from the water column, and proceed to a secure location. BOE will also modify rig contract requirements for each well location to state between June 1st and December 1st that the contractor must perform a riser, BOP, and tensioner system analysis for a category 1 Hurricane. BOE plans to compare the projected versus actual weather conditions of Hurricane Zeta and review with their weather service provider to eliminate any future conflicting information. Transocean will revise their Extreme Weather Evacuation Plan (EWEP) to ensure they meet all internal and external requirements regarding operational limits. Transocean will request bathymetry maps to give the rig teams a clear understanding of what hazards are present when proceeding to the rig's safe zone. BOE has modified their Hurricane Evacuation Plan to include a risk assessment and evaluation for barrier installation and testing, considering the time available prior to the arrival of tropical force winds.

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

Inaccurate weather forecast, the actual weather was worse than what was forecasted at the drillship's location. The original forecast said the storm would pass to the east of the Asgard's location and the storm would be a category 1 hurricane. Category 1 hurricane force winds range from 74 to 95 mph. The Asgard experienced strong category 1 to category 2 hurricane force winds and extremely rough sea states, with a peak wind gust equal to a category 4 hurricane.

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

Human error, the decision was made to stay latched up to the well and ride out the storm.

20. LIST THE ADDITIONAL INFORMATION:

N/A

21. PROPERTY DAMAGED:

NATURE OF DAMAGE:

**LMRP, riser, telescopic joint, mux cables, repair or replace
and Blue and Yellow Pods**

ESTIMATED AMOUNT (TOTAL): **\$5,700,000**

22. RECOMMENDATIONS TO PREVENT RECURRENCE NARRATIVE:

BSEE Houma 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:

N/A

25. DATE OF ONSITE INVESTIGATION:

04-NOV-2020

28. ACCIDENT CLASSIFICATION:

26. INVESTIGATION TEAM MEMBERS:

Jeremy Sonnier / Paul Reeves /

29. ACCIDENT INVESTIGATION

PANEL FORMED: **NO**

27. OPERATOR REPORT ON FILE:

OCS REPORT:

30. DISTRICT SUPERVISOR: **Amy**

Pellegrin

APPROVED

DATE: **31-MAR-2021**