

ACCIDENT INVESTIGATION REPORT

1. OCCURRED

DATE: **02-MAY-2024** TIME: **1620** HOURS

- STRUCTURAL DAMAGE
- CRANE
- OTHER LIFTING
- DAMAGED/DISABLED SAFETY SYS.
- INCIDENT >\$25K **168,150**
- H2S/15MIN./20PPM
- REQUIRED MUSTER
- SHUTDOWN FROM GAS RELEASE
- OTHER

2. OPERATOR: **Murphy Exploration & Production** (

REPRESENTATIVE:

TELEPHONE: CONTRACTOR: **Company**

Not Listed REPRESENTATIVE:

TELEPHONE:

3. OPERATOR/CONTRACTOR REPRESENTATIVE/SUPERVISOR

ON SITE AT TIME OF INCIDENT:

8. OPERATION:

- PRODUCTION
 - DRILLING
 - WORKOVER
 - COMPLETION
 - HELICOPTER
 - MOTOR VESSEL
 - PIPELINE SEGMENT NO.
 - OTHER **UWILD**
- TEMP ABAND
 - PERM ABAND
 - DECOM PIPELINE
 - DECOM FACILITY
 - SITE CLEARANCE

4. LEASE: **G35662**

AREA: **GC** LATITUDE:

BLOCK: **478** LONGITUDE:

5. PLATFORM:

RIG NAME: **NOBLE STANLEY LAFOSSE (FKA PACIFIC SHARAV**

6. ACTIVITY: EXPLORATION(POE)

DEVELOPMENT/PRODUCTION (DOCD/POD)

DECOMMISSIONING

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

9. CAUSE:

- 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

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

10. WATER DEPTH: **3760** FT.

11. DISTANCE FROM SHORE: **100** 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:

On May 2, 2024, a lifting incident occurred on the drillship Noble Stanley Lafosse, which was working under contract for Murphy Exploration & Production Company - USA (Murphy). Underwater Inspection in Lieu of Dry-Docking (UWILD) operations were being conducted at GC 478, OCS-G35662. A 3rd party company was conducting 5-year recertification of forward starboard crane. During the 3rd test to 110% of the crane rating, the brakes failed causing a pressure spike and a test fitting failure. The total amount of property damage was \$168,150.00.

During the afternoon, a 5-year recertification of the Forward Starboard knuckle boom crane (KBC #1) was to take place. A Permit to Work (PTW), Lift Plan, and Task Risk Assessments were completed prior to starting operations. Recertification operations took place without incident until 16:20 hrs.

While initiating load test three of four on (KBC #1), a winch brake assembly failure occurred resulting in the water bag descending into the water. The load tests were being performed after the winch brake assemblies were changed, which is an Original Equipment Manufacturer (OEM) requirement every 5 years. The winch brake assembly failure occurred at approximately 70 metric tons (MT) while trying to reach the full load test of 93.5 MT. As a result of the failed brakes, a Loss of Primary Containmentment (LOPC) occurred due to a hydraulic test port failure during the descent of the water bag, which sprayed hydraulic fluid onboard the rig.

The load test was stopped and the Offshore Installation Manager (OIM), Drill Site Leader (DSL), and Safety Training Supervisor (STS) were notified. The situation was evaluated and a plan was put in place to recover the water bag and place the crane in cradle. An announcement was made warning of slick decks from hydraulic fluid and the pipe rack was barriered off to prevent possible slip hazards. Scupper plugs were installed in the drains to keep the LOPC isolated to the pipe rack. The water bag contacted the corner of the take-on station causing it to rip open and descend to the Gulf of Mexico. Initial inspection of the brakes, motor, and crane cable was completed by the contractor and two third party crane companies. This inspection revealed a failure of two hydraulic motors and four brake assemblies.

The Bureau of Safety and Environmental Enforcement (BSEE) Houma District office was notified orally and a written report was submitted in eWell within 15 days. The BSEE Houma District inspectors (inspectors) were able to perform an onsite investigation on May 16, 2024, to gather additional documentation, pictures, and witness statements.

Technical Information

5-fall - Also known as 5 parts. KBC #1 is rated up to 84 MT when utilizing the 5-fall block, which was being used during the load test. When strung single fall they are rated for 17 MT Sea lift area - this is the area outboard of the ship and is defined during the installation and setup of the crane.

Internal lift zone - this is the area over the deck of the ship and is defined during crane installation and setup.

Sprag clutch - A sprag clutch is a one-way freewheel clutch. It resembles a roller bearing but, instead of cylindrical rollers, non-revolving asymmetric figure-eight shaped sprags or other elements allowing single direction rotation, are used. When the unit rotates in one direction, the sprags tilt slightly, producing a wedging action and binding because of friction. In the case of cranes, sprags may be used in conjunction with disc brakes.

Automatic Overload Protection System (AOPS) - a system that automatically safeguards and protects the crane against overload and over movement during operation by allowing the hook to be pulled away from the crane in a controlled manner to avoid significant damage.

The load test was being conducted on 5-fall at 18-meter radius, with a 1 meter

significant wave height, and the test target was to hold for 5 minutes at 93.5 MT. The failure occurred at 70 MT. The lift was made over the sea without resetting the sealift area to stay in internal lift zone during testing. Resetting the sealift area will prevent the AOPS from arming / activating at SWL x dynamic factor. At 18-meter radius, the following would have been the maximum load with 5-falls and 1-meter significant sea height: (SWL) 50.7 MT X 1.3 = 65.91 MT to reach AOPS activate level set point.

The probable cause in this incident was due to KBC#1 being overloaded as per the sea lift designated area (per AOPS over the side). Individuals performing the task did not have proper training on (AOPS) functionality. There was no procedure to reset the sea lift area when performing a 5-year load test over the side of the vessel. At 18-meter radius, with 1-meter sea state, KBC#1 should have activated AOPS and control the lowering of the load. When AOPS is activated, the motors load up equal to or greater than the supported load and command the brakes to release. This allows the load to be lowered in a controlled manner. According to the Operators investigation report, it is likely that the four breaks didn't release simultaneously and the last break that released caused the associated motor to drive over the sprag. This caused the sprag to break, resulting in the loss of the load. The hydraulic motors were damaged due to the uncontrolled descent which caused the motors to act as pumps. LOPC occurred due to the motors becoming pumps with unregulated pressure which ejected two minimes test ports.

All four brake assemblies were disassembled and inspected. KBC #1 brake assembly #4 showed no signs of heat or scoring, indicating it did not disengage when AOPS was activated. Brake assemblies 1, 2, and 3 had heat marks indicating they had released and attempted to engage. Sprag clutches were broken in brake assembly #4. The AOPS engaged while all 70 MT was applied to the sprags / brake assembly plus the additional torque of the all 4-motors attempting to lower the load. This exceeded the structural limits of the sprag clutches and they sheared causing the uncontrolled descent of the water bag. Noble maintenance routine from Legacy Pacific Drilling (L-PACD) provides poor instructions on how to perform the load test and perform safety checks. Safety checks are listed post load test. The work task references the TEC-WWD_SOW-016 - Load Test for Post-Repair which provides poor guidance and does not specify to reset the sealift area. Brake overhauls are being sent to the overhaul facility individually. The brakes need to be disassembled when returned to the rig for installation. This compromised workshop Quality Control checks.

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

Equipment failure - The structural limits of the sprag clutches were exceeded causing them to shear. This led to the uncontrolled descent of the water bag.

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

Personnel training - individuals performing the task did not have proper training on AOPS functionality.

Management system - No procedure to reset the lift area when performing a 5-year load test over the side of the vessel.

Communication - Job instructions were inadequate because testing safety systems are mentioned after the 5-year load test instead of before the load test.

20. LIST THE ADDITIONAL INFORMATION:

N/A

21. PROPERTY DAMAGED:

NATURE OF DAMAGE:

Water bag ripped open. Two hydraulic

motors and four brake assemblies.

ESTIMATED AMOUNT (TOTAL): \$168,150

22. RECOMMENDATIONS TO PREVENT RECURRENCE NARRATIVE:

BSEE Houma District has no recommendations 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:

16-MAY-2024

28. ACCIDENT CLASSIFICATION:

26. Investigation Team Members/Panel Members:

29. ACCIDENT INVESTIGATION PANEL FORMED:

NO

OCS REPORT:

27. OPERATOR REPORT ON FILE:

30. DISTRICT SUPERVISOR:

Amy Gresham

APPROVED

DATE:

18-SEP-2024