

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: **19-MAY-2022** TIME: **2145** HOURS

2. OPERATOR: **Hess Corporation**

REPRESENTATIVE:

TELEPHONE:

CONTRACTOR: **Transocean Offshore**

REPRESENTATIVE:

TELEPHONE:

- STRUCTURAL DAMAGE
- CRANE
- OTHER LIFTING
- DAMAGED/DISABLED SAFETY SYS.
- INCIDENT >\$25K
- 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: **G14224**

AREA: **GB** LATITUDE:

BLOCK: **216** LONGITUDE:

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

5. PLATFORM:

RIG NAME: **T.O. DISCOVERER INSPIRATION**

6. ACTIVITY:

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

9. CAUSE:

7. TYPE:

INJURIES:

HISTORIC INJURY

REQUIRED EVACUATION

LTA (1-3 days)

LTA (>3 days)

RW/JT (1-3 days)

RW/JT (>3 days)

FATALITY

Other Injury

OPERATOR

CONTRACTOR

0

1

0

1

- 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: **1600** FT.

11. DISTANCE FROM SHORE: **148** MI.

12. WIND DIRECTION: **SSE**
SPEED: **16** M.P.H.

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

14. SEA STATE: **4** FT.

15. PICTURES TAKEN:

16. STATEMENT TAKEN:

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

Incident Summary:

At 2145 hours on 19 May 2022, the Injured Party (IP), a SUBC USA, LLC (SUBC) technician who was a third-party contractor, sustained an injury to his left-hand. The IP's left-hand injury occurred during blowout preventer (BOP) soak testing on-board the Transocean (TO) Discoverer Inspiration drillship that was conducting well abandonment operations for Hess Corporation (Hess) at Garden Banks Block 216. The IP reported to the Rig Medic for an evaluation and treatment. On 20 May 2022, the IP was evacuated from the drillship for medical treatment and required surgery to his left-hand to remove debris and injected BOP fluid.

Sequence of Events:

On 19 May 2022, TO was conducting BOP No.2 soak testing in the BOP well testing area located by the lower marine riser package. Earlier in the day, the TO Senior Subsea Engineer discovered a leak on the BOP No.2 Yellow Pod hot stab line. The IP came on duty starting at 1800 hours to replace personnel that were in the process of repairing the BOP No.2 Yellow Pod hot stab line leak. At 2130 hours, the IP met and was instructed by the TO Subsea Superintendent to conduct a pre-job inspection and to identify the proper tools to repair the ongoing leaking BOP No.2 Yellow Pod hot stab line. The IP went up to the BOP soak testing area for the pre-job inspection and determined that he needed to move a 0.5-inch false hotline hose with BOP fluid containing 5000 psi of pressure to access the leaking BOP No. 2 Yellow Pod hot stab line. When the IP moved the 5000 psi pressurized 0.5-inch false hotline hose with his left-hand, the hose ruptured at the location where he placed his hand on the hose causing a laceration and injection of BOP fluid into his left-hand thumb and index finger areas. BOP No.2 soak testing operations were immediately suspended. TO Supervisors mobilized to the incident scene, collected any evidence, interviewed witnesses, and held a safety stand down with all personnel. The IP reported to the Rig Medic for treatment and was evacuated by medevac helicopter at 0104 hours on 20 May 2022, for a medical evaluation by an onshore physician. The physician determined that the IP would require surgery on his left hand to remove debris and injected BOP fluid.

BSEE Investigation:

On 26 May 2022, a Bureau of Safety and Environmental Enforcement (BSEE) Lafayette District Investigation Team mobilized to the TO Inspiration drillship and conducted an onsite Incident Follow-up Investigation. Hess and TO representatives briefed the BSEE Investigation Team on the incident and the team collected any available information pertaining to the incident. TO reported to BSEE that they did not observe any visible signs of wear and tear on the exterior of the 0.5-inch false hotline hose prior to the hose rupture and that TO had sent the 0.5-inch false hotline hose to the manufacturer for a failure analysis evaluation. Hess informed BSEE that TO's incident investigation is on-going, and that Hess will submit the final investigation report to BSEE when completed. BSEE gathered all available documentation including: 1) the Hess Initial Incident Notification Report; 2) the Hess Synergi Life Report (EHS Incident-Accident Report); 3) the TO Quick Share Report; 4) Photographs provided by Hess and TO; 5) a diagram that contained photographs that depicted the IP and the 0.5-inch false hotline hose locations at the time of the incident; 6) the TO General Work Permit in use at the time of the incident; 7) the IP's recorded statement; 8) the IP's training records; 9) witness statements; 10) the TO BOP Soak Test Procedure; and 11) the manufacturers Polyflex 2300 Series hose specifications for the type of hose that ruptured during the incident. BSEE inspected and photo-documented the incident scene and observed that TO was in the process of installing protective cover sleeves over the green polyflex hoses and were re-routing the BOP lines as corrective actions to prevent another incident of this nature.

On 30 June 2022, Hess informed BSEE that a failure analysis evaluation for the 0.5-inch false hotline hose was being conducted by the manufacturer, located in Stafford, Texas (TX). On 11 July 2022, Hess informed BSEE

that the manufacturer's facility located in Stafford, TX was unable to determine the root cause for the hose rupture; therefore, the 0.5-inch false hotline hose was shipped to the manufacturer's headquarters located in Ravenna, Ohio. On 9 August 2022, Hess submitted to BSEE the manufacturer's Hose Engineering Analysis Report which suggested that the 0.5-inch false hotline hose ruptured due to a combination of factors including: breaching of the green thermoplastic hose that was most likely due to internal broken wires; the internal broken wires exhibited signs of excessive corrosion with pitting and scaling oxidation; blisters/bulges were observed on the green thermoplastic hose cover; and the layline was unreadable. The layline is the information printed along the length of the hose and contains important information about the hose's properties including the trade name, size, working pressure, rating, and other pertinent information. In addition, the manufacturer reported that they observed multiple scratches and gouges along the entire length of the green thermoplastic hose cover. On 24 September 2015, the manufacturer had issued Safety Bulletin 4400-B.1 that specified in Section 5.0 "Hose and Fitting Maintenance and Replacement Instructions" that the hose life span may be reduced without a continuing maintenance program and gave other essential requirements. The manufacturer listed the following conditions during a visual inspection that requires an immediate shut down and/or replacement of the hose: 1) damaged, cracked, cut, or abraded hose cover; 2) blistered, soft, degraded, or loose hose cover; and 3) kinked, crushed, flattened, or twisted hose. Section 5.4 describes the functional test and avoiding hazardous areas when testing. Section 5.5 discusses hose replacement intervals. Section 5.6 describes hose inspection and failure. The manufacturer recommended that the Safety Guide should be reviewed in the event that the hoses are used in operations similar in nature. TO did not mention to BSEE during the investigation that they were following the maintenance and replacement recommendations as stated in the manufacturer's Safety Bulletin 4400-B.1.

On 28 September 2022, BSEE received from Hess TO's Inspection and Maintenance of Hydraulic Hoses Procedure (BPR-HOSE-003), but TO reported to BSEE that they do not have any specific maintenance records for the ruptured 0.5-inch false hotline hose. Hess also submitted to BSEE: 1) TO's Hose Standard (HQS-TCS-EST-HOSE-003) that provides guidance for managing hoses and 2) TO's Energy Sources Standard (HQS) that ensures controls are in place to prevent incidents while working around energy sources. Also, on 28 September 2022, Hess reported to BSEE that the IP was wearing gloves at the time of the incident, but that the type of gloves that the IP was wearing is unknown.

The BSEE Incident Investigation Team determined that the incident was due to human error, improper hand placement, since the IP placed his left-hand on a 5000 psi pressurized 0.5-inch false hotline hose to move in order to access the BOP No.2 Yellow Pod hot stab line and to equipment failure, ruptured hose. BSEE reviewed the manufacturer's Hose Engineering Analysis Report and based on their findings, the 0.5-inch false hotline hose may have ruptured due to a combination of factors that the manufacturer identified including breaching of the green thermoplastic hose caused by internal broken wires and excessive corrosion on the broken internal hose wires with pitting and scaling oxidation. BSEE also determined that the following factors contributed to this incident including: 1) TO's General Work Permit and the Hazard Identification Prompt card failed to address the risks or hazards associated with moving pressurized BOP fluid lines; 2) the TO BOP Soak Test Procedure did not mention the risk of having to move pressurized hoses when needed to access leaking BOP Pod hot stab lines; 3) insufficient hose inspection and maintenance programs; and 4) insufficient communication since TO failed to notify personnel of the dangers and hazards or install warning barriers when working around energy sources such as high pressurized lines.

Human performance error:

- Improper hand placement - The IP placed his left hand on a 5000 psi pressurized 0.5-inch false hotline hose to move in order to access the leaking BOP No. 2 Yellow Pod hot stab line when the 0.5-inch false hotline hose ruptured causing his left-hand injury.

Management system:

- Equipment failure - According to the manufacturer, the 0.5-inch false hotline hose failed due to a combination of the following factors including: breached green thermoplastic hose most likely due to broken internal wires; broken wires exhibiting excessive corrosion with pitting and scaling oxidation; unreadable layline; and blisters/bulges on the green thermoplastic hose cover.

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

Management system:

- Insufficient hazard recognition - The TO General Work Permit and the Hazard Identification Prompt card failed to address the hazards associated with moving or working around pressurized lines containing BOP fluid during BOP soak testing.
- Insufficient procedure - The TO BOP Soak Test Procedure did not address the risks or hazards when moving pressurized hoses with BOP fluid to access leaking BOP Pod hot stab lines.
- Insufficient inspection and maintenance programs - TO has guidelines in place to inspect and maintain hoses but did not implement their hose inspection and maintenance guidelines or standards; therefore, TO failed to recognize that the 0.5-inch false hotline hose posed a safety hazard. Also, TO did not follow the recommendations or instructions for hose maintenance and replacement by the manufacturer.
- Insufficient communication - TO failed to communicate the dangers and hazards to personnel when working around energy sources including high pressurized lines. TO did not install warning barriers to warn personnel of restricted areas during pressure testing.

20. LIST THE ADDITIONAL INFORMATION:

21. PROPERTY DAMAGED: NATURE OF DAMAGE: **For Public Release**
A 0.5-inch false hotline hose was damaged during this incident. The 0.5-inch false hotline hose ruptured and was damaged beyond repair; therefore, had to be replaced.

ESTIMATED AMOUNT (TOTAL): \$3,800

22. RECOMMENDATIONS TO PREVENT RECURRANCE NARRATIVE:

The BSEE Lafayette District makes no recommendations to the Office of Incident Investigations regarding this incident.

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 (S) Incident of Noncompliance is issued to document that Hess failed to perform operations in a safe and workmanlike manner during BOP soak testing on the Transocean Discoverer Inspiration drillship at Garden Banks Block 216. On 19 May 2022, a SUBC USA, LLC technician, the Injured Party (IP), sustained a left-hand injury when moving a 0.5-inch false hotline hose with 5000 pounds per square inch (psi) of pressure to access the leaking BOP No.2 Yellow Pod hot stab line. When the IP moved the 5000 psi pressurized 0.5-inch false hotline hose, it ruptured causing a laceration and injection of BOP fluid into his left-hand. The injury was due to human error, improper hand placement, because the IP placed his left-hand on a 5000 psi pressurized hose to move when it ruptured causing the left-hand injury. The IP was evacuated on 20 May 2022 and required surgery to his left-hand to remove debris and injected BOP fluid.

A BSEE Incident Follow-up Investigation Team determined that the IP's left-hand injury was due to the following: 1) human error due to improper hand placement on a 0.5-inch hotline hose pressurized to 5000 psi that ruptured causing the left-hand injury; 2) equipment failure of the 0.5-inch hotline hose due to internal factors including corrosion and broken wires as determined by the hose manufacturer; 3) failure of TO's General Work Permit and the Hazard Identification Prompt Card to address the hazards when moving pressurized hoses with BOP fluid; 4) insufficient TO BOP Soak Test Procedure that did not address the potential risks or hazards when needed to move pressurized hoses to access leaking BOP Pod hot stab lines; 5) insufficient inspection and maintenance of hoses and lines as specified in TO's internal program or as recommended by the manufacture; and 6) failure to communicate the hazards of energy sources or to install barriers for restricting access around high pressurized lines.

25. DATE OF ONSITE INVESTIGATION:

26-MAY-2022

26. INVESTIGATION TEAM MEMBERS:

/ Jack Angelle (Onsite) / Troy Naquin
(Onsite & Report Author) /

27. OPERATOR REPORT ON FILE:

28. ACCIDENT CLASSIFICATION:

29. ACCIDENT INVESTIGATION

PANEL FORMED: NO

OCS REPORT:

30. DISTRICT SUPERVISOR: Mark

Malbrue

APPROVED

DATE: 10-OCT-2022