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: **13-DEC-2021** TIME: **1115** HOURS
2. OPERATOR: **Sanare Energy Partners, LLC**
   REPRESENTATIVE:
   TELEPHONE:
   CONTRACTOR:
   REPRESENTATIVE:
   TELEPHONE:

- [ ] STRUCTURAL DAMAGE
- [X] CRANE
- [ ] OTHER LIFTING
- [ ] DAMAGED/DISABLED SAFETY SYS.
- [X] INCIDENT >$25K **crane and air compressor**
- [ ] H2S/15MIN./20PPM
- [ ] REQUIRED MUSTER
- [ ] SHUTDOWN FROM GAS RELEASE
- [ ] OTHER

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

4. LEASE: **00060**
   AREA: **SS** LATITUDE:
   BLOCK: **72** LONGITUDE:

5. PLATFORM: **OF**
   RIG NAME:

6. ACTIVITY:
   - [ ] EXPLORATION(POE)
   - [X] DEVELOPMENT/PRODUCTION (DOCD/POD)

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

   - [ ] POLLUTION
   - [ ] FIRE
   - [ ] EXPLOSION

   LWC
   - [ ] HISTORIC BLOWOUT
   - [ ] UNDERGROUND
   - [ ] SURFACE
   - [ ] DEVERTER
   - [ ] SURFACE EQUIPMENT FAILURE OR PROCEDURES

   COLLISION [ ] HISTORIC [ ] >$25K [ ] <=$25K

8. OPERATION:
   - [X] PRODUCTION
   - [ ] DRILLING
   - [ ] WORKOVER
   - [ ] COMPLETION
   - [ ] HELICOPTER
   - [ ] MOTOR VESSEL
   - [ ] PIPELINE SEGMENT NO.
   - [ ] OTHER

9. CAUSE:
   - [X] EQUIPMENT FAILURE
   - [X] HUMAN ERROR
   - [ ] EXTERNAL DAMAGE
   - [ ] SLIP/TRIP/FALL
   - [ ] WEATHER RELATED
   - [ ] LEAK
   - [ ] UPSET H2O TREATING
   - [ ] OVERBOARD DRILLING FLUID
   - [ ] OTHER _____

10. WATER DEPTH: **20** FT.
11. DISTANCE FROM SHORE: **6** MI.
12. WIND DIRECTION: **NE**
    SPEED: **14** M.P.H.
13. CURRENT DIRECTION:
    SPEED: M.P.H.
14. SEA STATE: **3** FT.
15. PICTURES TAKEN:
16. STATEMENT TAKEN:

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Incident Summary:
On December 13, 2021, a crane incident occurred at Sanare Energy Partners, LLC's (Sanare's) Ship Shoal (SS) Block 72 Platform "OF" (OCS-00060) platform. While offloading an air compressor from the motor vessel (MV) "Leader" owned by Gulf Offshore Logistics, LLC., the auxiliary (aux) wire rope parted causing the compressor to fall approximately 20-30 feet into offshore waters. The air compressor was recovered five days later. The total estimated cost of damage associated with this incident is $40,000. No injuries occurred as a result of the incident.

Sequence of Events:
The aux winch in service at the time of the incident was last certified on June 22, 2012. The bulletin from the winch manufacturer states that the aux winch should have undergone a Level 5 teardown inspection and Magnetic Particle Test (MPI) in June of 2017. According to the Sanare provided SS 72 OF (OF) crane records, Sanare's Notice to Operators (NTO) Report dated January 26, 2022, and the Phoenix Offshore Solutions, LLC (Phoenix) Crane Mechanic (CM), the Level 5 Inspection and MPI were not completed per the winch manufacturer's Bulletin specifications.

According to OF crane records, the aux winch was certified for lifting personnel on June 29, 2012 and on July 3, 2012 the aux wire rope was installed.

An Annual Crane Inspection of the OF Crane was completed on July 17, 2021 by a CM working for Phoenix Offshore Solutions, LLC (Phoenix), Sanare's crane service provider. Following the inspection, the CM did not place the aux line out of service despite indicating in the Annual Inspection Report and Inspection Report Summary that the aux line was not well greased, heavily corroded at the cable end, and that both the aux wire rope and aux hoist had "well surpassed the service limit". The CM indicated that new aux wire rope and a new aux hoist needed to be ordered on a Service Parts Requisition Form included in the Annual Inspection Report.

On July 20, 2021, email correspondence provided by Sanare and Phoenix indicate that Phoenix sent Sanare a quote for approximately $30,000 in new OF crane parts and materials. Phoenix reported to the Bureau of Safety and Environmental Enforcement (BSEE) that Sanare did not approve the quote until after the December 13, 2021 aux wire rope failure.

At approximately 11:15 hours on December 13, 2021, the aux wire rope of the SS 72 OF crane failed during offloading operations. The contracted Crane Operator (CO) reported in his witness statement that he had successfully offloaded the first lift from the MV Leader. During the second lift, a 4,000 lbs rental air compressor owned by Gulf America, LLC, the CO reported that he cleared the boat and lifted the load 20-30' off of the water before the aux cable broke above the hook. As a result, the compressor, along with the aux ball, aux hook, and wire rope sling fell into offshore waters. The air compressor was recovered from offshore waters on December 18, 2021.

THE BSEE Investigation:
On December 13, 2021, BSEE conducted an onsite Incident Follow Up (IF) investigation of the OF crane incident. BSEE took pictures of the condition of the crane and noted that the crane was left at a 50 degree boom angle and that the boom was facing the NNW corner of the OF platform. BSEE interviewed the CO and riggers who had witnessed the incident who reported that following the incident the crane was shutdown and was not moved. BSEE noted that the 9/16" aux wire rope was parted at the end and was pulled back through the boom tip sheave with the slack dangling along the boom. BSEE granted permission for the crane to be placed back into the boom rest at the end of the IF investigation. BSEE was informed that a dive team was scheduled to recover the rental air compressor on December 18, 2021.

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Due to COVID-19 pandemic restrictions and protocol, BSEE was not able to conduct an additional IF Investigation until January 28, 2022. During this second IF Investigation, BSEE was able to examine the aux wire rope failure point. Per BSEE request, Sanare kept the last 15 feet of aux wire rope from both sides of the parted point of failure as well as the aux ball and stinger. BSEE was able to witness Sanare's investigation of the incident including marking the section of newly installed aux wire rope at the approximate location where the previous aux wire rope failed. Sanare did this in order to determine whether this particular section of line was subjected to damage such as rubbing during normal operations. A demonstration was made for BSEE and no possibilities of external damage to that section of line could be readily identified. Additionally, Sanare personnel demonstrated the bend test referred to in Sanare's NTO report which revealed brittle wire within the core of the failed aux wire rope. BSEE's observations were the same as reported by Sanare in their NTO. The area of the failure point, an approximately four foot section of aux wire rope extending two feet on either side of the parted point, was found heavily corroded and splintered upon bending being applied. This point of failure was found to be approximately 44 to 48 feet from the aux ball.

Sanare provided BSEE with crane records upon request. During OF crane records inspection, BSEE found that the OF crane was with a 60' box boom and according to Pre-Use Inspection Reports, it was utilized less than ten hours per month in all of 2021. The hours of usage dictated that the OF crane be conformed to the requirements of the Infrequent Usage Category found in the American Petroleum Institute's (API) Recommended Practice (RP) 2D. API RP 2D states that cranes in the Infrequent Usage Category be subject to a Pre-Use and Annual Inspection. API RP 2D also specifies that special attention should be given to wire rope on Infrequent Usage Cranes during Pre-Use Inspections.

Also during the OF crane records inspection, BSEE noted verbiage included in the July 17, 2021 Annual Crane Inspection Report that mentioned that the CM was to "cut and remove 15 feet of cable and remake the deadend and safety loop on the aux cable". The Phoenix CM reported that this task was not completed. There was no documentation in the crane records supporting why the Phoenix CM chose to not cut and remake the aux line, but the Phoenix CM reported to BSEE on June 1, 2022 that he chose to not cut and remove 15' of aux wire rope during the Annual Inspection because the cable "was written up to be changed, so the cable wasn't cut". The Phoenix CM documented in the Inspection Report Summary that the aux hoist and aux wire rope, had "well surpassed the service limit". Also in the Annual Inspection Report completed on July 17, 2021, the CM described the aux wire rope cable end as heavily corroded and indicated that the aux wire rope/line was not well greased. The CM included new aux wire rope in a "Service Parts Requisition" list completed on July 17, 2021. Phoenix reported to BSEE that they emailed a quote for replacement of the aux wire rope and aux hoist to Sanare on July 20, 2021 and in the email to Sanare Phoenix stated, "please see the attached quotes for deficiencies from the inspections performed last week in the 72 field". The email went on to specify the SS-72 LQ and SS-63K deficiencies, but made no specific reference to the SS-72 OF crane Annual Inspection. Sanare confirmed receipt of the email and admit that the quote was not approved until after the aux wire rope failed on December 13, 2021.

Despite the CM's noted findings during the Annual OF Crane Inspection, the CM did not take the OF crane out of service (OOS), post proper cautionary notices, or communicate limits of continued service. The CM defended inaction stating that the aux line passed inspection and that there were no apparent safety concerns warranting the crane be removed from service. He also reported to BSEE that he felt that the aux wire rope was in good enough condition to last until the aux wire rope would be replaced. The CM reported that he assumed Sanare would replace the aux wire rope in a timely manner. BSEE found that no previous inspection reports mentioned deficiencies associated with wire rope.

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The Phoenix CM cited the winch manufacturer's Bulletin and Sanare policy as basis for claims aux hoist service limits had been surpassed. BSEE was able to confirm that the aux hoist was not maintained in accordance with the aux winch manufacturer's recommendations. However, Sanare Safe Work Practices (SWP) for Cranes and Rigging provided to BSEE did not mention a service limit for aux or main wire ropes. Sanare provided BSEE with the wire rope manufacturer's specifications and noted that a service life limitation is not mentioned. The wire rope manufacturer made several recommendations regarding maintenance strategies to improve or increase service life of the wire rope. The recommendation also stated that wire rope service life can be greatly extended by following a planned program of installation, operation, maintenance, and inspection. Prior to the incident on December 13, 2021, crane records indicate that the aux wire rope was last changed on July 3, 2012 and that the aux wire rope had been in service for 9 years. However, neither API RP 2D, API Specification 2C, or API Specification 9A provide service life guidelines for wire rope.

Upon completion of the records inspection, it was found that from the time of the Annual Inspection completion on July 17, 2021 and the date of the incident on December 13, 2021, the OF crane was utilized 32 times. On December 13, 2021, a certified CO completed a Pre-Use Inspection, and all certifications of the individuals included on the Job Safety Analysis for the crane operations that day were current. Witness statements of the riggers involved and the CO all reported hearing or seeing the line part and/or the compressor hitting the water. Following the crane incident on December 13, 2021, the crane was placed OOS. The main line winch and main line wire rope were replaced and placed back in service on December 17, 2021. The aux winch and aux line were replaced on January 12, 2022 and the crane was placed back into full service.

Conclusion:
In Sanare's NTO Report they determined that the Root Cause of the crane incident on December 13, 2021 was their failure to lubricate the wire rope allowing for corrosion and disintegration. Sanare also identified that they failed to manage and maintain their mechanical integrity program and stated that their crane service provider failed to follow their own procedures as well as those found in API RP 2D. Through records inspection, BSEE found evidence that Sanare failed to maintain the OF crane per manufacturer's recommendations and failed to identify and address deficiencies despite several indications found referenced in inspection reports and crane service provider correspondence. Sanare and the crane service provider failed to take the SS 72 OF crane OOS, post proper cautionary notices, or communicate limits of continued service after deficiencies were identified.

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

Equipment Failure due to inadequate maintenance/inadequate equipment repair.

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

Human Performance Error, not following proper procedures.

20. LIST THE ADDITIONAL INFORMATION:

n/a

21. PROPERTY DAMAGED:	NATURE OF DAMAGE:
Aux wire rope, aux ball, stinger, and rental air compressor	**The rental air compressor was damaged when it was dropped into offshore waters due to the aux wire rope parting.**

ESTIMATED AMOUNT (TOTAL): **$40,000**

22. RECOMMENDATIONS TO PREVENT RECURRANCE NARRATIVE:

BSEE Houma District has no recommendations for the Office of Incident Investigations at this time.

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23. POSSIBLE OCS VIOLATIONS RELATED TO ACCIDENT: **YES**

24. SPECIFY VIOLATIONS DIRECTLY OR INDIRECTLY CONTRIBUTING. NARRATIVE:

(1) INC was issued:
I-105: IF DEFICIENCIES THAT IMPAIR SAFE OPERATION ARE KNOWN, IS THE CRANE TAKEN OUT OF SERVICE OR ITS OPERATION RESTRICTED TO ELIMINATE THE UNSAFE CONDITION IN ACCORDANCE WITH API RP 2D, PARAGRAPH 3.1.5c?
During BSEE's investigation of the Ship Shoal 72 "OF" crane's auxiliary (aux) wire rope failure that occurred on December 13, 2021, the following was identified: An Annual Crane Inspection was completed on the SS-72 OF crane on July 17, 2021. In the corresponding report, the 3rd party Crane Mechanic (CM) noted that the aux line was not well greased, heavily corroded at the cable end, and that both the aux wire rope and aux hoist winch had "well surpassed service limits according to Sanare policy". Also, the CM listed new aux wire rope and a new aux hoist winch to be ordered on a Service Parts Requisition Form and emailed the list to Sanare on July 20, 2021. Despite the CM's noted findings, the CM did not take the SS-72 OF crane out of service (OOS), post proper cautionary notices, or communicate limits of continued service. The CM defended inaction stating that the aux line passed inspection and that there were no apparent safety concerns warranting the crane be removed from service.

25. DATE OF ONSITE INVESTIGATION:

13-DEC-2021

26. Investigation Team Members/Panel Members:

Brandon Dunigan (Author) /

27. OPERATOR REPORT ON FILE:

28. ACCIDENT CLASSIFICATION:

29. ACCIDENT INVESTIGATION PANEL FORMED:

NO

OCS REPORT:

30. DISTRICT SUPERVISOR:

Amy Pellegrin

APPROVED DATE: **28-JUL-2022**