UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF SAFETY AND ENVIRONMENTAL ENFORCEMENT
GULF OF MEXICO REGION

ACCIDENT INVESTIGATION REPORT

1. OCCURRED
   DATE: **11-APR-2018** TIME: **1715** HOURS

2. OPERATOR: **W & T Offshore, Inc.**
   REPRESENTATIVE:
   TELEPHONE:

   CONTRACTOR: **Shamrock Management, LLC (Sharm**
   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:

4. LEASE: **G05006**
   AREA: **HI** LATITUDE:
   BLOCK: **22** LONGITUDE:

5. PLATFORM: **A**
   RIG NAME:

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

7. TYPE:
- [ ] HISTORIC INJURY
  - [x] REQUIRED EVACUATION 1
  - [ ] LTA (1-3 days)
  - [ ] LTA (>3 days
  - [ ] RW/JT (1-3 days)
  - [x] RW/JT (>3 days) 1
  - [ ] Other Injury
- [ ] FATALITY
- [ ] POLLUTION
- [x] 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:
- [ ] EQUIPMENT FAILURE
- [x] HUMAN ERROR
- [ ] EXTERNAL DAMAGE
- [ ] SLIP/TRIP/FALL
- [ ] WEATHER RELATED
- [ ] LEAK
- [ ] UPSET H2O TREATING
- [ ] OVERBOARD DRILLING FLUID
- [ ] OTHER

10. WATER DEPTH: **42** FT.
11. DISTANCE FROM SHORE: **11** MI.
12. WIND DIRECTION: **ESE**
    SPEED: **5** M.P.H.
13. CURRENT DIRECTION: **ESE**
    SPEED: **1** M.P.H.
14. SEA STATE: **1** FT.
15. PICTURES TAKEN:
16. STATEMENT TAKEN:

17. INVESTIGATION FINDINGS:

On 12-April-2018 at 10:53 hours, W&T Offshore Inc. notified Lake Jackson District through Incident Reporting in Ewell of a fire with injury requiring evacuation. The incident occurred on 11-April-2018 at 17:15 hours at HI 22 A, OCS-G05006, Complex ID: 10298.

On 11-April-2018 at 17:00 hours, two (2) Shamrock Energy Solution Mechanics completed overhaul of crane engine. The Mechanics then began to bleed down the diesel fuel system on the facility's crane engine by using the pneumatically operated starter (air starter). During this process, one Mechanic was in the Operator's cab of the crane pushing the start button as needed while the other Mechanic was standing next to the engine using hand tools to bleed fuel injectors on the engine head.

After a few cranks with the starter, the Mechanics exhausted the stored pressure of the volume tank that supplies the starter. Mechanics then told the facility Operators more air pressure was needed. The facility Operator opened a valve at the facility's departing gas pipeline back pressure valve sending natural gas to the fuel gas system.

Mechanics attempted to bleed engine fuel system by operating the starter again. On approximately the third cranking of starter, a flash fire occurred at the engine air intake blower. The Mechanic standing next to engine was engulfed in flames sustaining 1st and 2nd degree burns to hands, arms, face, and ears. The Mechanics then yelled to the facility Operators for aid and climbed down from crane pedestal to main deck. The two facility Operators came to the main deck from the production deck in order to assist the injured Mechanic.

The Mechanics told the Operators what had happened. The Operators then contacted the Island Operating Base at Sabine, Texas for a helicopter transport to land. Upon arrival at the Sabine shore base, statements were written and the Injured Person (IP) drove himself in a company truck to Prime Occupational Medical Clinic in Sulfur, Louisiana for medical treatment.

The BSEE investigation, interviews and witness statements revealed the crane engine starting system utilizing natural gas was not covered in the Job Safety Analysis (JSA). The Operators stated they did not inform the two Mechanics that the starting system was configured with flammable natural gas. The Mechanics assumed the crane engine starting system was compressed air. The Mechanics also stated they would not have operated the starter with gas due to the starter's discharge not being properly vented away from the engine.

The Lessee modified the facility's Utility and Instrument Air system to an Instrument Gas system on 20- November-2017. This action was completed without Lessee preparing and completing a Management of Change (MOC) to identify and control hazards associated with equipment and facility operating procedures. The volume tank on the crane pedestal which once stored compressed air for the crane engine starter, was purged with natural gas upon taking the Utility and Instrument Air system out of service.

The Lessee isolated the out of service (OOS) Air Compressor skid from system, leaving the crane pedestal volume tank pneumatically operated starter with only pressure safety valve (PSV) protection at the fuel gas system. The PSV was set at 275 psi, according to Lessee's test records. The Maximum Allowable Working Pressure (MAWP) of the crane engine starter is only 150 psi. By connecting the volume tank to the fuel gas system, the vessel became subject to API 14 C evaluation and the tank was not equipped with a temperature safety element (TSE).

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

1. Lessee failed to ensure the discharge of the crane engine starter was vented to a safe area. Discharge was found to vent against engine block on the same side as engine air intake and blower.

2. Though exact source of the ignition is unknown; it is suspected the ignition source was caused by natural gas rich air entering into the engine air intake causing the fire.

3. Facility Operators failed to inform the Mechanics working on crane engine that the starting system utilized natural gas instead of compressed air for its actuation.

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

1. Lessee modified the facility's Utility and Instrument Air system to an Instrument Gas system without completing a Management of Change (MOC). The Lessee should have identified the need for the starter to be vented to a safe area, when completing the MOC.

20. LIST THE ADDITIONAL INFORMATION:

None

21. PROPERTY DAMAGED: | NATURE OF DAMAGE:

None | **None**

ESTIMATED AMOUNT (TOTAL):

22. RECOMMENDATIONS TO PREVENT RECURRANCE NARRATIVE:

1. Office of Safety Management to evaluate the incident.
2. Safety Alert when using natural gas versus air.

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

24. SPECIFY VIOLATIONS DIRECTLY OR INDIRECTLY CONTRIBUTING. NARRATIVE:

G-110 (C) DOES THE LESSEE PERFORM ALL OPERATIONS IN A SAFE AND WORKMANLIKE MANNER AND PROVIDE FOR THE PRESERVATION AND CONSERVATION OF PROPERTY AND THE ENVIRONMENT.-Lessee failed to ensure discharge of the crane engine starter was vented to a safe area. Discharge of starter was found to discharge against the engine block on the same side as engine air intake and blower. This resulted in a flash fire and one injured person sustaining 1st and 2nd degree burns.
G-132 (W) HAS THE DISTRICT MANGER BEEN VERBALLY NOTIFIED IMMEDIATELY FOLLOWING INCIDENTS INVOLVING ALL: FATALITIES, INJURIES REQUIRING EVACUATION, LOSS OF WELL CONTROL, FIRES, EXPLOSIONS, H2S RELEASES AS DEFINED IN 30 CFR. Following an incident involving a fire on 11-April-2018 at HI 22 A, the evacuation of an employee due to occupational injuries requiring medical attention, the lessee failed to provide notification to the Lake Jackson District Office within the prescribed time.

25. DATE OF ONSITE INVESTIGATION:

16-APR-2018

26. INVESTIGATION TEAM MEMBERS:

Kirby Calhoun / Steve Cline / Edward Keown (Author) /

27. OPERATOR REPORT ON FILE:

28. ACCIDENT CLASSIFICATION:

29. ACCIDENT INVESTIGATION PANEL FORMED: **NO**

OCS REPORT:

30. DISTRICT SUPERVISOR:

Stephen P. Martinez