

UNITED STATES DEPARTMENT OF THE INTERIOR
 MINERALS MANAGEMENT SERVICE
 GULF OF MEXICO REGION

ACCIDENT INVESTIGATION REPORT

1. OCCURRED

DATE: **19-DEC-2009** TIME: **1400** HOURS

2. OPERATOR: **Fairways Offshore Exploration, Inc**
 REPRESENTATIVE: **Slater, Jim**
 TELEPHONE: **(832) 255-1530**
 CONTRACTOR: **DeLeon & Associates, LLC**
 REPRESENTATIVE: **Kenneth Gayneaux**
 TELEPHONE: **(337) 991-9517**

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

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

6. OPERATION:

4. LEASE: **G22587**
 AREA: **EC** LATITUDE:
 BLOCK: **194** LONGITUDE:

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

5. PLATFORM:
 RIG NAME:

6. ACTIVITY: EXPLORATION (POE)
 DEVELOPMENT/PRODUCTION (DOCD/POD)

8. CAUSE:

7. TYPE:
- HISTORIC INJURY
 - REQUIRED EVACUATION
 - LTA (1-3 days)
 - LTA (>3 days)
 - RW/JT (1-3 days)
 - RW/JT (>3 days)
 - Other Injury

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

- FATALITY
- POLLUTION
- FIRE
- EXPLOSION

9. WATER DEPTH: **97** FT.

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

10. DISTANCE FROM SHORE: **50** MI.

11. WIND DIRECTION:
 SPEED: M.P.H.

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

COLLISION HISTORIC >\$25K <=\$25K 13. SEA STATE: FT.

17. INVESTIGATION FINDINGS:

The BOEM investigation team discovered that on 18 May 2009, a third party crane service company performed an inspection of the crane and listed several deficiencies including corroded fittings; specifically a 1/4 inch check valve was noted and all were recommended for replacement. The BOEM investigation team was not provided any documentation to confirm that the deficiencies were corrected.

On 7 January 2010, BOEM Lake Charles District representatives conducted a teleconference with the Company Representative (Co. Rep.), Production Operations Supervisor and a third party consultant. During the meeting the Co. Rep. stated that he estimated the KCL fluid weight at 3,050 lbs and the empty weight of the tank at 4,500 lbs. These under estimated figures total 7,550 lbs and are 740 lbs less than the actual weight (8,290 lbs) of the load. The Production Operations Supervisor stated that the boom cylinder and associated check valve were inspected and found operational. Section one, page two of the RCA states that "Equipment performed as designed".

The review of the Lessees crane Standard Operating Procedure (SOP), revealed that Rule "O" was not followed. Rule "O" of the SOP states, "All loads in excess of 5,000 pounds to be lifted by a crane offshore should, if possible, have the weight of the load clearly marked on the load before the load leaves the shore base as a precaution against overloading the crane. Caution should be taken to see that the payload capacity of the marine vessels is not exceeded". The BOEM team determined that the weights of the tanks were not marked as specified in the SOP. Rule "E" of the SOP states "a minimum of at least 4 wraps need to remain on the drum" as opposed to the recommendation in API RP 2D which states no fewer than 5 full wraps.

On 19 December 2009, the Crane Operator (CO) lifted a 25 bbl tank of KCL weighing 8,290 lbs, located approximately 25 feet from the boat, when a rusted main hoist winch check valve plug leak occurred. Before the tank could be safely lowered down to the boat deck, the crane boom collapsed near the boom cylinder anchor point resulting in the tank being submerged in the Gulf of Mexico. There were no injuries as a result of this incident. Subsequent to the incident, the Lessee mobilized a 175 class lift boat to the location and completed the well work and crane repair along with tank recovery without incident.

The recompletion procedure required at least 12 bbls of KCL as indicated in step number 9 of the wireline procedure and 15 bbls of KCL was transported to the job site in a 25 bbl tank. The shipping ticket for the 15 bbls of KCL revealed a total weight of 6,180 lbs and documentation from the rental tank company confirmed the empty 25 bbl tank's weight of 5,200 lbs (a total weight of 11,380 lbs). The dynamic load capacity of the crane was only 8,415 lbs.

After several days into the job, the on-site Co. Rep. discovered that the crane was not capable of lifting the 25 bbl tank with the 15 bbls of KCL and the boat was sent to the dock in order to pick up an empty 25 bbl tank. Once the boat returned to the platform, the Co. Rep. went down on the boat and equalized the tanks. The approximate weight of the 25 bbl tank with 7.5 bbls of KCL was 8,290 lbs. Due to the limited availability of space on the platform, the two 25 bbl tanks remained on the deck of the boat until needed. On 19 December 2009, the crew was at a point in the procedure and needed the KCL. The CO lifted one of the 25 bbl tanks of KCL approximately 25 ft off of the boat and a leak occurred on the load winch. Before the tank could be safely lowered back down to the deck of the boat, the crane boom collapsed near the boom cylinder anchor point resulting in the tank being submerged in the Gulf of Mexico.

On 22 December 2009, the BOEM investigation team interviewed the CO and learned that he was not familiar with the load capacity of the crane. During the interview the CO stated the crane was rated for 20,000 lbs and the boom angle was approximately 85 to 86 degrees when the leak occurred on the main hoist winch check valve plug. During the interview the BOEM determined that the leaking main hoist winch check valve plug distracted the CO from the crane controls and the dynamic load capacity was exceeded

during the attempt to lower the tank back on the boat. The load chart located at the CO's console indicates the maximum static capacity of 10,530 lbs and the dynamic capacity of 8,415 lbs, at a maximum boom angle of 81 degrees. Based on this information the CO did not realize that he was at the limit for the crane's maximum dynamic load capacity. The Lessees Root Cause Analysis (RCA) determined the causes of the incident to be "Mechanical failure (rusted check valve plug started leaking)", "Exceeded crane load capacity (angle and distance)" and "Proximal cause (Human error)".

Three different Job Safety Analysis (JSA) forms were presented to the BOEM inspector. The forms were generic in nature and lacked specific details pertaining to the job. The section identified as "Precautions Taken" on the crane-specific JSA was missing a check mark for load chart and rating. On a general JSA form, the section identified as "Required Safety Procedures & Equipment" was missing check marks for Material Safety Data Sheet (MSDS) Review, Operating Procedure and Hearing Protection. None of the JSAs mentioned anything regarding load weight or the crane's load limit.

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

The CO boomed down beyond the dynamic load capacity of the crane, thereby stressing the crane boom to the point of collapse.

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

I. Poor job planning as a result of the following:

1. A 25 bbl tank with 15 bbls of KCL (total weight of approximately 11,380 lbs) was sent to the job site, with the crane's maximum static capacity of 10,530 lbs and the dynamic load capacity of only 8,415 lbs at a maximum boom angle of 81 degrees. The weight limitation of the crane was not discovered until several days into the job.

2. The CO failed to:

- * Familiarize himself with the crane's load chart and boom angle indicator.
- * Recognize the corroded fittings associated with the main load winch during the crane pre-use inspection. Interviews conducted by BOEM also determined that the leaking main hoist winch check valve plug distracted the CO from the crane controls and the dynamic load capacity was exceeded during the attempt to lower the tank back on the boat.
- * Follow company Rule "O" SOP for crane operations as a result of lifting the load without the weight marked on the tank.
- * Follow API RP 2D guidance for maintaining a minimum of 5 full wraps required on the drum.

II. The three different JSA forms presented to the BOEM inspector were generic in nature and lacked specific details pertaining to the job as follows:

* The section identified "Precautions Taken" on the crane-specific JSA was missing a check mark for load chart and rating.

* On a general JSA form, the section identified "Required Safety Procedures & Equipment" was missing check marks for Material Safety Data Sheet (MSDS) Review, Operating Procedure and Hearing Protection. The job did include handling chemicals, working around high noise equipment and other task that required personnel to be familiar with specific company operating procedures.

* None of the JSAs mentioned anything regarding weight of the load or load limit of the crane.

20. LIST THE ADDITIONAL INFORMATION:

N/A

21. PROPERTY DAMAGED:

Crane box boom

NATURE OF DAMAGE:

Boom was bent beyond repair.

ESTIMATED AMOUNT (TOTAL): \$227,000

22. RECOMMENDATIONS TO PREVENT RECCURANCE NARRATIVE:

The Lake Charles District does not have any recommendations for the Regional Office of Safety Management.

23. POSSIBLE OCS VIOLATIONS RELATED TO ACCIDENT: YES

24. SPECIFY VIOLATIONS DIRECTLY OR INDIRECTLY CONTRIBUTING. NARRATIVE:

I-153: The failure to replace a corroded fitting associated with the crane load winch contributed to the collapse of the crane boom. [Note: The BOEMRE investigation team was not provided any documentation to confirm that the corroded fitting deficiency was corrected.]

25. DATE OF ONSITE INVESTIGATION:

22-DEC-2009

26. ONSITE TEAM MEMBERS:

Scott Mouton / Wayne Meaux /
Jarrott Guillory / Galen Simon /

29. ACCIDENT INVESTIGATION

PANEL FORMED: NO

OCS REPORT:

30. DISTRICT SUPERVISOR:

Williamson, Larry

APPROVED

DATE: 28-JUL-2010

INJURY/FATALITY/WITNESS ATTACHMENT

OPERATOR REPRESENTATIVE

CONTRACTOR REPRESENTATIVE

OTHER _____

INJURY

FATALITY

WITNESS

NAME:

HOME ADDRESS:

CITY:

STATE:

WORK PHONE:

TOTAL OFFSHORE EXPERIENCE:

YEARS

EMPLOYED BY:

BUSINESS ADDRESS:

CITY:

STATE:

ZIP CODE:

OPERATOR REPRESENTATIVE

CONTRACTOR REPRESENTATIVE

OTHER Crane Operator

INJURY

FATALITY

WITNESS

NAME:

HOME ADDRESS:

CITY:

STATE:

WORK PHONE:

TOTAL OFFSHORE EXPERIENCE:

YEARS

EMPLOYED BY:

BUSINESS ADDRESS:

CITY:

STATE:

ZIP CODE:

INJURY/FATALITY/WITNESS ATTACHMENT

OPERATOR REPRESENTATIVE

INJURY

CONTRACTOR REPRESENTATIVE

FATALITY

OTHER Crane Mechanic

WITNESS

NAME:

HOME ADDRESS:

CITY:

STATE:

WORK PHONE:

TOTAL OFFSHORE EXPERIENCE: YEARS

EMPLOYED BY:

BUSINESS ADDRESS:

CITY:

STATE:

ZIP CODE:

Crane/Other Material-Handling Equipment Attachment

Equipment Information

Installation date: 09-SEP-2006

Manufacturer: TITAN

Manufacture date: 09-SEP-2006

Make/Model: TITAN T-5 / 224-8186-40D

Any modifications since manufactured? Describe and include date(s).

What was the maximum lifting capacity at the time of the lift?

Static:10530 Dynamic: 8415

Was a tag line utilized during the lift? N

Were there any known documented deficiencies prior to conducting the lift? If yes, what were the deficiencies?

Exceeded crane load capacity (angle and distance were exceeded)

List specific type of failure that occurred during this incident. (e.g. cable parted, sticking control valve, etc.)

Boom collapsed while lifting a heavy load off of a boat.

If sling/loose gear failure occurred does operator have a sling/loose gear inspection program in place? N

Type of lift: MD

For crane only:

Type of crane: HYDRAULIC

Boom angle at time of incident: Degrees: 81 Radius: 5

What was load limit at that angle? 8415

Crane equipped with: L

Which line was in use at time of incident? L

If load line involved, what configuration is the load block: 2 part.

Load Information

What was being lifted? **25 BBL TANK**

Description of what was being lifted (e.g. 10 joints of 2 3/8-inch pipe, ten 500-lb. sacks of sand, 2 employees, etc.)

7.5 BBLs OF KCL

Approximate weight of load being lifted: **8290**

Was crane/lifting device equipped with an operable weight indicator? **N**

Was the load identified with the correct or approximate weight? **N**

Where was the lift started, where was it destined to finish, and at what point in the lift did the incident occur? Give specific details (e.g. pipe rack, riser cart, drill floor, etc.)

The load was lifted 25 to 30 feet off the boat when the crane boom collapsed.

If personnel was being lifted at the time of this incident, give specific details of lifting device and riding apparatus in use (e.g. 1) crane-personnel basket, 2) air hoist-boatswain chair, other)

Were personnel wearing a safety harness?

Was a lifeline available and utilized?

List property lost overboard.

Rigger/Operator Information

Has rigger had rigger training?

If yes, date of last training:

How many years of rigger experience did rigger have?

How many hours was the operator on duty prior to the incident?

Was operator on medication when incident occurred? **N**

How many hours was the rigger on duty prior to the incident?

How much sleep did rigger have in the 24 hours preceding this incident?

Was rigger on medication when incident occurred?

Were all personnel involved in the lift drug tested immediately following this incident?

Operator: **N** Rigger: Other:

While conducting the lift, was line of sight between operator and load maintained?

N

Does operator wear glasses or contact lenses? **N**

If so, were glasses or contacts in use at time of the incident? **N**

Does operator wear a hearing aid? **N**

If so, was operator using hearing aid at time of the incident? **N**

What type of communication system was being utilized between operator and rigger at time of this incident?

For crane only:

What crane training institution did crane operator attend?

TECHNICAL RESOURCE SERVICES

Where was institution located? **LAFAYETTE LA.**

Was operator qualified on this type of crane? **Y**

How much actual operational time did operator have on this particular crane involved in this incident?

Years: 32

Months: 10

List recent crane operator training dates.

2/27/07

For other material-handling equipment only:

Has operator been trained to operate the lifting device involved in the incident? **N**

How many years of experience did operator have operating the specific type of lifting device involved in the incident?

Inspection/Maintenance Information

For crane only:

Is the crane involved classified as Heavy, Moderate or Infrequent use.

I

Was pre-use inspection conducted? **Y**

For the annual/quarterly/monthly crane inspections, please fill out the following information:

What was the date of the last inspection? **19-DEC-2009**

Who performed the last inspection? **LEON COLLINS**

Was inspection conducted in-house or by a 3rd party? **TP**

Who qualified the inspector? **COMPACT VALVE AND MANIFOLD**

Does operators' policy require load or pull test prior to heavy lift? **N**

Which type of test was conducted prior to heavy lift? **P**

Date of last pull test: **26-OCT-2009** Load test: **10-OCT-2009**

Results: **P**

If fail explain why:

Test Parameters: Boom angle: **80** Radius: **20**

What was the date of most recent crane maintenance performed? **18-DEC-2009**

Who performed crane maintenance? (Please clarify persons name or company name.)

RYAN VOISIN

Was crane maintenance performed in-house or by a third party? **TP**

What type of maintenance was performed?

ADDED 10 GALLONS OF HYD. OIL, CHECKED CRANE COMPONENTS.

For other material-handling equipment only:

Was equipment visually inspected before the lift took place?

What is the manufacture's recommendation for performing periodic inspection on the equipment involved in this incident?

Safety Management Systems

Does the company have a safety management program in place? **N**

Does the company's safety management program address crane/other material-handling equipment operations?

N

Provide any remarks you may have that applies to the company's safety management program and this incident?

Lessees crane SOP does not comply with recommendation of API RP 2D , specifically the SOP states "there shall always be at least four wraps of cable on the winch drum" and 2D states "No fewer than five full wraps" should remain on the drum. Also the SOP requires loads in excess of 5,000 lbs be clearly marked when lifted by an offshore crane.

Did operator fill out a Job Safety Analysis (JSA) prior to job being performed?

Y

Did operator have an operational or safety meeting prior to job being performed?

Y

What precautions were taken by operator before conducting lift resulting in incident?

Co-man recognized the initial weight of the load was to heavy for the crane to lift. The boat was sent to pick-up an empty tank. An empty 25 bbl tank was sent to the location and both tanks were equalized. The weight of the 25 bbl tank with 1/2 the amount of KCL was just under the load capacity of the crane and evidence indicates the weight of the load was under-estimated by 740 lbs.

Procedures in place for crane/other material-handling equipment activities:

Did operator have procedures written? **Y**

Did procedures cover the circumstances of this incident? **N**

Was a copy available for review prior to incident? **N**

Were procedures available to MMS upon request? **N**

Is it documented that operator's representative reviewed procedures before conducting lift?

N

Additional observations or concerns: