MARINE CASUALTY REPORT

DRILLING RIG DIXILYN 8, JULIE ANN
CAPSIZING & SINKING IN GULF OF MEXICO
I MARCH 13, 1968 I

U.S. COAST GUARD
MARINE BOARD of INVESTIGATION REPORT
and COMMANDANT'S ACTION

ACTION BY
NATIONAL TRANSPORTATION SAFETY BOARD

DEPARTMENT OF TRANSPORTATION
WASHINGTON D.C. 20591

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DRILLING RIG DIXILYN 8, JULIE ANN
CAPSIZING AND SINKING IN GULF OF MEXICO
MARCH 13, 1968

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NATIONAL TRANSPORTATION SAFETY BOARD
DEPARTMENT OF TRANSPORTATION
WASHINGTON, D.C. 20591

DRILLING RIG DIXILYN 8, JULIE ANN CAPSIZING AND SINKING IN GULF OF MEXICO MARCH 13, 1968

ACTION BY THE NATIONAL TRANSPORTATION SAFETY BOARD

This casualty was investigated by a U. S. Coast Guard Marine Board of Investigation convened at New Orleans, Louisiana, on March 20, 1968. The National Transportation Safety Board has reviewed the investigative record and has considered those facts which are pertinent to the Board's statutory responsibility to make a determination of cause.

PROBABLE CAUSE

The National Transportation Safety Board finds that the cause of this casualty was the circumstance of heavy weather inadequately forecast and the drilling rig being in the floating state. Heavy boarding seas and the rolling of the rig caused damage to the hull and the loss of watertight integrity. A fracture developed in the main deck; boarding seas broke windows in the crew quarters and caused a ventilator to carry away; and several sections of drill collar which had been chained on deck came adrift and damaged ventilators and other attachments to the main deck. Water entering the rig through the damaged main deck shorted out the main generators. The resulting power loss and therefore loss of pumping capability led to uncontrolled flooding and eventual foundering.

Although the available weather information indicated a change due to an approaching "front," the conditions predicted during the period required for moving the rig did not indicate to the supervisory personnel that there would be any hazard. The actual wind and sea conditions encountered were far more severe than forecast. Had the actual severe weather encountered been anticipated, the rig would probably not have been moved, nor lost.

DISCUSSION AND RECOMMENDATIONS

The question arises whether the weather forecasts could have been more accurate and whether a better local reporting system could have developed and passed on information of high winds which may have been present along the front and may have been observed at other locations. It appears that existing weather reporting and forecasting systems do not possess the capability of detail to observe and report the development of weather hazards. Although this casualty clearly involved the role of weather forecasting and weather warning, the scope of the Coast Guard investigation of this case does not include sufficient evidence concerning the weather forecasting system, and any observations made by others in the period preceding the casualty, to allow any conclusions as to the efficiency of the weather forecasts. There is no basis upon which to conclude that the forecasting system was or was not in line with the existing state of the art or whether there were any weather observations made by anyone which could have provided more timely warning. Because the Marine Board sought and received very little testimony concerning weather beyond the published forecasts, it is difficult to determine measures which might have been taken to provide shorter term forecasts or warnings of worse-than-anticipated winds. The Board does not consider it practical at this time further to investigate weather information which might have been assembled on the day of this casualty. The possibility of obtaining better short-term forecasts and warnings should be approached by experimental attempts, not by accident investigation.

The Safety Board concurs in the recommendations of the Marine Board relative to removing or properly securing loose gear prior to moving and also the design of windows and portholes for marine use.

BY THE NATIONAL TRANSPORTATION SAFETY BOARD:

Adopted this 31st day of December, 1969:

John H. Reed, Chairman

Oscar M. Laurel, Member

Francis H. McAdams, Member

Louis M. Thayer, Member

Isabel A. Burgess, Member.

not participating

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

Address reply to:
COMMANDANT (MVI-3)
U.S. COAST GUARD
WASHINGTON, D.C.
20591

5943/DIXILYN 8, JULIE ANN
C-8 Bd
14 MAY 1969

Commandant's Action

on

The Marine Board of Investigation convened to investigate the capsizing and sinking of the drill rig, DIXILYN 8, JULIE ANN, O. N. 275944 in the Gulf of Mexico in Block 276, Eugene Island Area, with no loss of life, on 13 March 1968

1. The record of the Marine Board of Investigation convened to investigate the subject casualty has been reviewed and the record, including the Findings of Fact, Conclusions and Recommendations is approved subject to the following comments and final determination of the cause of the casualty by the National Transportation Safety Board.

SYNOPSIS OF INVESTIGATIVE REPORT FINDING OF FACT

1. At or about 0035, 13 March 1968, the mobile drill rig DIXILYN 8, JULIE ANN, O. N. 275944 capsized and sank in the Gulf of Mexico at the approximate position, latitude 28° 25.0' N, longitude 91° 26.5' W, while under tow to a new drilling position. There was no loss of life or serious injury as a result of this casualty. Twenty-nine men were evacuated prior to the capsizing.

2. The preparations required to tow the JULIE ANN to a new drilling location were completed by 0615 on 11 March 1968. Twenty hours were required to move the drill rig to the new location, including three hours for lowering the legs and jacking up the rig to an operating position. The wind velocity at the commencement of the tow was stated to be 10 to 20 knots from an easterly to southeasterly direction. The wave height was estimated to be two to three feet.

3. Dixilyn Corporation did not subscribe to any weather service. It was the policy of the Company to gather weather information from as many sources as possible and after an evaluation was made of this information the decision to move or not to move was made by the supervisory personnel in charge. At the time the move commenced, the weather information available indicated that the weather would be good until late Monday night or early Tuesday morning, 12 March 1968.

4. Operating procedures recommended that with the drill rig afloat, no attempt to lower the legs to the ocean floor should be made when the wave height was in excess of five feet. At 1645, waves were estimated at ten feet. It was at this time that it was decided to lower the legs to reduce the rolling, pitching, and heaving motion of JULIE ANN. When a depth of 10 feet had been reached the motor on the after port leg shorted out. This automatically set the brake and made it impossible to lower this leg further without emergency procedures. Jacking up of the JULIE ANN was considered; however, with the seas in excess of ten feet it was decided against because of the extreme danger of buckling a leg when contact is first made with the ocean floor. After this time the weather deteriorated further with an increase of wind velocity and sea height. By 2400, 11 March the wind had veered to the west at about 40 knots with 15 to 18 foot seas.

5. During the early evening the main deck fractured. The heavy weather caused a ventilator to carry away and break windows in the crew's quarters. The seas breaking over the rig entered the hull through these openings. The pumping capacity was sufficient to handle the ingress of water. After daylight on 12 March the wind was estimated at 50 knots with seas running as high as 20 feet. The continued heavy weather caused several sections of drill collars secured on deck to come adrift. The drill collars struck ventilators and other attachments to the main deck. This opened holes in the deck allowing greater quantities of water to enter the rig, and soon two of the three generators shorted out and were secured. After the last generator failed, the rig took a port list and slowly settled by the stern. The rig finally capsized and sank at 0035 on 13 March.

REMARKS

1. The Board's conclusion that the JULIE ANN capsized and sank due to the unexpected heavy weather is concurred with in view of the fact that 50 knot winds and 20 foot seas were encountered during the period the Weather Bureau's forecast only predicted an increase in wind velocity in the 15 to 30 knot range. It is not clear, however, from the record whether or not the official Weather Bureau marine forecast was obtained or utilized before or during the move. This casualty emphasizes the need for personnel supervising moving of drill rigs to utilize the best available weather forecast as well as keeping this information updated constantly.

ACTION CONCERNING THE RECOMMENDATIONS

1. Recommendations one and two of the Board will be referred to the Merchant Marine Council as agenda items for the next meeting of the National Offshore Advisory Panel.

W. J. SMITH
Admiral, U. S. Coast Guard
Commandant

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

Address reply to:

5943
Mobile Drill Rig
Dixilyn 8, JULIE ANN
17 June 1968

From: Marine Board of Investigation, New Orleans, La.
To: Commandant (MVI)

Subj: Uninspected drill rig Dixilyn 8, JULIE ANN, O.N. 275944; capsizing and sinking in the Gulf of Mexico in Block 276, Eugene Island Area, with no loss of life, on 13 March 1968

Findings of Fact:

1. At about 0035 Central Standard Time on 13 March 1968, the mobile drill rig Dixilyn 8, JULIE ANN, O.N. 275944, capsized and sank in the Gulf of Mexico in approximate position Latitude 28° 25.0' N, Longitude 91° 26.5' W, in approximately 170 feet of water while under tow to a new drilling location. There was no loss of life or serious injury as a result of this casualty. Twenty-nine men were safely evacuated from the rig prior to the capsizing. All times in this report are Central Standard Time.

2. Vessel Data:

Name	JULIE ANN
Official Number	275944
Type	Jackup drilling rig
Service	Oil Exploitation
Gross Tons	3118.8
Net Tons	3118.0
Length	192 feet
Breadth	149.5 feet
Depth	20 feet
Propulsion	None
Home Port	New Orleans, La.
Owners	Dixilyn Corp. 1470 Saratoga Building New Orleans, La. 70112
Operators	Same
Person in Charge	Mr. Alton Dishongh, Superintendent 713 Hilds Street Morgan City, Louisiana 70380
Certificate of Inspection	Uninspected
Load Line Certificate	Not required

3. The JULIE ANN was a tri-pod, self-elevating, offshore drilling platform built in Vicksburg, Mississippi in 1957 by R. G. LeTourneau, Inc. It was constructed as a triangular shaped floating barge equipped with three electro-mechanically powered spuds or legs. Corrugated steel plates form the hull sides and the bottom of the platform structure. Flanged steel plates are

utilized in the construction of the inner hull, bulkheads, platform deck, the transverse bulkhead and the decks of the crew's quarters. Each triangular shaped spud is constructed with three 175-foot racks which extend to the bottom of the cylindrical bearing tanks. During moving these spud bearing tanks are raised from the ocean bottom and may be housed in the spud wells. Three anchor winches are located on the platform deck. Quarters and living facilities are provided for 45 men. The barge hull is divided into two levels. The lower level (similar to a double bottom) is further subdivided into tanks for fuel and water. The upper level contains the machinery space, mud room, and living quarters. A transverse watertight bulkhead separates the machinery space and the mud room. In operation it was towed to the drilling site, the legs lowered to the ocean bottom and the hull structure self-elevated on the spuds to the desired height above the water for drilling operations. This procedure was reversed for moving to a new drilling location. Enclosure (1) shows basic arrangement and outward appearance of the rig.

4. There were no deaths as a result of this casualty. Three men were slightly injured while transferring from the rig to the M/V MONTCO, a 129-foot supply vessel. Mr. Etrick Whitehurst of 4701 Oakridge Court, Mobile, Alabama, suffered a broken left heel; Mr. Maxie B. Williams of Rt. 3, Box 284, Waynesboro, Mississippi, suffered a fracture of the small toe on his left foot; Mr. Camile P. Templet of Parish Road, Box 38, Thibodaux, Louisiana, suffered bruises of the right foot and left leg.

5. The main deck of the JULIE ANN had been recently renewed. During a routine inspection, which included gauging of some of the rig structure, supervising company personnel had decided that this renewal was necessary and it was accomplished by R. G. LeTourneau, Inc., the original builder of the rig, while the rig was in a jacked-up position in the Gulf, some 60 to 80 days prior to the casualty.

6. The JULIE ANN had completed drilling on location in Block 206, Ship Shoal Area, about two weeks before the casualty. Since there was no immediate employment for the rig at that time, it remained on location performing routine maintenance work. On Sunday, 10 March 1968, preparations were begun to move the JULIE ANN to the site of her next well in Block 16, South Marsh Island, a distance of approximately 60 to 65 miles. At about 2150 on 10 March, Mr. Alton Dishongh of 713 Hilda Street in Morgan City, La., Drilling Superintendent for Dixilyn Corporation, boarded the rig to supervise the intended move. Mr. Dishongh had been engaged in offshore oil operations for the past 12 years, and had supervised about 43 similar moves of the JULIE ANN. He was to be assisted by Mr. James O. Roberts, whose address is Glenn's Trailer Park, Amelia, Louisiana. Mr. Roberts was Maintenance Superintendent aboard the rig. He had been employed by Dixilyn Corporation for about eight years, had made many moves with the JULIE ANN and similar rigs. He had also attended a one-week school in the operation and moving of the rig, conducted by R. G. LeTourneau, Inc., the builder of the rig. Assisting Mr. Dishongh and Mr. Roberts were 22 other employees of Dixilyn Corporation and four service personnel furnished by Boatel, a catering company. As was customary on a move of this type, a representative of the Insurance Underwriters, Mr. William Patton, of 6317 Delrod Street in New Orleans, La., was also aboard. This made a total of 29 persons on board at the commencement of the move.

7. A description of the vessels involved in the move and the rescue operations follows. All of the crewmembers of these vessels did not possess Specially Validated United States Merchant Mariner's Documents, and all of these vessels were not properly manned with the required Able Seamen.

Name	GULF PRINCE	ELFER GUIDRY
Official Number	292934	506455
Type	Towing	Towing
Gross Tons	197	199
Net Tons	134	135
Length	98.5	98.8
Breadth	29.2	30.0
Depth	12.5	13.9
Propulsion	Motor	Motor
Horsepower	2400	3000
Home Port	Houma, La.	Houma, La.
Owners	Gulf Prince, Inc. Rt. 1, Box 90 Galliano, La.	Lockport Tugs, Inc. P.O. Box 250 Lockport, La.
Person in Charge	Robert Verret Box 481-H Cutoff, La. 70345	Anatole J. Pitre Rt. 1, Box 367 LaRose, La. 70373
License	Ocean Operator	None
Merchant Mariner's Document	Z-1270228	None
Certificate of Inspection	Uninspected	Uninspected
Load Line	Yes	None

Name	LADY JILL	MONTCO
Official Number	511695	294631
Type	Towing	Supply
Gross Tons	178	189
Net Tons	121	128
Length	106.5	126.7 feet
Breadth	28.0	32.0
Depth	9.0	11.4
Propulsion	Motor	Motor
Horsepower	2400	1180
Home Port	Houma, La.	Houma, La.
Owners	J. A. Gravois, Jr. 308 South Bayou Drive Golden Meadow, La. 70357	Montco, Inc. P.O. Box 471 Golden Meadow, La. 70357
Person in Charge	Malco Joseph Guidry Rt. 3, Box 85 Cutoff, La. 70345	Benton Danos Rt. 2, Box 576 Cutoff, La. 70345
License	Ocean Operator	Ocean Operator
Merchant Mariner's Document	None	None
Certificate of Inspection	Uninspected	28 November 1967 New Orleans, La.
Load Line	None	Yes. Endorsed for annual inspection in November, 1967

Name	GULF MISS
Official Number	287240
Type	Towing
Gross Tons	148.32
Net Tons	100.0
Length	91.0
Breadth	26.0
Depth	12.1
Propulsion	Motor
Horsepower	1200
Home Port	New Orleans, La.
Owners	Gulf Miss, Inc. 637 Common Street New Orleans, La. 70130
Person in Charge	Terjem Thomassen 841 Catherwood Place Houston, Texas 77015
License	None
Merchant Mariner's Document	Z-1169423
Certificate of Inspection	Uninspected
Load Line	Not required

8. At about midnight of 10 March 1968 the GULF PRINCE, ELFER GUIDRY and LADY JILL, the three tugs that had been contracted for, arrived to assist the JULIE ANN during the proposed move. A total of 6500 horsepower was recommended by the designer of the rig for towing in good weather, and the tugs provided had a combined horsepower of 7800. By 0125 on 11 March 1968, the barge had been ballasted, all movable weights checked and all found in order by both Dixilyn's supervisory personnel and the Underwriter's representative. The operation of lowering the barge into the water now began. By 0200 the barge was near the water and the three tugs were made fast, the GULF PRINCE on the port bow, the ELFER GUIDRY and the LADY JILL on the starboard bow. By about 0250 the barge was lowered partially into the water and after all safety checks had been completed it was lowered completely into the water, and jetting out of the legs commenced about 0345. By 0615 on 11 March 1968, all legs were raised and housed and the rig departed location enroute to Block 16, South Marsh Island area.

9. The JULIE ANN was loaded in accordance with the designer's recommendations for a move. The derrick tower was located at its inboard position, which is the towing position. The recommended load for a move is a maximum of 3,000,000 pounds. Only about 1,700,000 pounds were on board, well within the limits. This variable load was distributed about one-third on deck and two-thirds as liquids in the double bottom tanks. The draft during the move was about 13-1/2 feet, giving a freeboard of about 6-1/2 feet. The barge was on an even keel.

10. At this time the wind was estimated at generally 10 to 20 knots from an East to Southeast direction, with a sea estimated at 2 to 3 feet. Dixilyn Corporation did not subscribe to any private weather service and had not contracted for any such service to forecast the weather and advise them during the move. It was the policy of the company to gather weather information from as

many other sources as possible and after an evaluation was made of this information the decision to move or not to move was made by the supervisory personnel in charge. This information was obtained from official government weather forecasts, from other company rigs on location in the Gulf, from various oil companies who were customers of Dixilyn and who, in some cases, subscribed to private weather forecasting services, and from the aviation weather forecast. At the time the move commenced, the weather information available indicated that the weather would be good until late Monday night or early Tuesday morning, 12 March 1968. The estimated time to lower the barge into the water and prepare for the move was about three hours, the time estimated to cover the 60 to 65 miles was roughly 17 hours, and it was expected to take about three hours to jack up on location. Twenty-four hours was considered ample time in which to complete the move and it was the opinion of those in charge that the weather would remain good until the move was completed.

11. Upon departing Block 206, Ship Shoal Area, Mr. Dishongh instructed the GULF PRINCE to proceed on such a course to the new location that the rig would never be in over 100 feet of water. This would allow the rig to jack up if an emergency should arise. In compliance with these instructions the GULF PRINCE set the course for the tow in a generally west-northwesterly direction toward the new location. The tow proceeded normally and by 1200 11 March had covered approximately 22 miles, with an ETA on location of 2300. During the early afternoon the wind began to slowly increase and by the middle of the afternoon had begun to veer. At about 1615 it became necessary for all the tugs to let out additional tow line because of the increasing seas. By 1645 the seas were estimated at about 10 feet, while the wind had veered into the southwest and water began entering the port after leg well hatch. The rig radioed the GULF PRINCE and requested that the tugs heave to and hold the rig head up into the seas to permit personnel to check this leg well hatch. While the rig was hove to, personnel went on deck, and working carefully between the seas which were beginning to come aboard, they found and repaired a loose dog on the hatch. It was then decided to lower the legs partway to dampen the movement of the rig in the seaway. This lowering of the legs commenced and had progressed for about 10 feet when a motor on the after port leg shorted out. This automatically set the brake and made it impossible to lower this leg further without emergency procedures. These procedures would require personnel to go on deck and enter the leg well hatch to disconnect the brake, or else the remaining motors would have to force the leg to move, which would strip the gears on the burned-out motor. Since the seas were already in excess of five feet, which is the maximum wave height recommended for jacking up, it was decided that there would be no advantage in taking the risks to personnel or equipment by lowering the legs further. In view of the increasing wind and seas, both rig and tug personnel agreed little progress could be made at that time toward the new location, and the best procedure was to remain hove to and wait for the weather to moderate. The possibility of jacking up was also discussed but was decided against because of the extreme danger of buckling a leg at that critical time when first contact is made with the ocean floor. The tow, therefore, remained hove to on

a general southwesterly to westerly heading through the night as the seas increased and the wind continued to gradually veer into the west. While hove to, the tow slowly drifted in a south-southeasterly direction under the influence of the wind, seas, and current.

12. At about 1700 on Monday, 11 March, a fracture was first noted in the main deck plating over the machinery space running generally fore and aft along the derrick's port skid rail. It did not present any serious problem at that time as the pumps aboard the rig could easily remove any water entering the machinery space. However, this fracture opened further during the evening and night and in spite of efforts to restrict the flow of water through the opening, it began to have serious effect on the machinery, as water dripped and sprayed on the generators and other electrical equipment. The weather continued to deteriorate and by 2400, 11 March, the wind had veered to westerly at about 40 knots with 15 to 18 foot seas.

13. At about 0320 Tuesday, 12 March 1968, the tug ELFER GUIDRY parted her tow line and because of darkness and seas on deck it was deemed to be too dangerous to personnel to attempt to make her fast again until daylight. The tow line which parted was composed of the steel towing cable on the towing winch of the tug, which is attached to approximately 200 feet of 10 or 11 inch nylon "spring" line, to which is attached a wire bridle approximately 70 feet long with an eye in the bitter end which is made fast aboard the tow. This towing gear parted only a few feet from the JULIE ANN. The wire bridle which parted is reported to have been less than 30 days old, having been used on two jobs previously. The entire towing arrangement was inspected at the commencement of the tow by the personnel of the tug, and was reported to be in excellent condition.

14. At about 0330 or 0400 on 12 March, the seas coming aboard the rig broke a ventilator over the galley range. Shortly after this some of the windows in the crew's quarters were broken even though steel louvered shutters were fitted over them for protection during heavy weather. The water which entered the rig through these damaged areas shorted out the galley range. It collected on the upper deck level, ran down the ladder wells, and collected at the lowest level of the quarters, where the crew rigged a small portable pump and transferred the water to the mud room sump. The sump in the mud room was connected to the main machinery space sump by a line in which there was a hand-operated valve. This valve was opened to allow the water to drain into the machinery space sump where it was pumped overboard. There was no check or stop check valve fitted in this line. Although the water entering the quarters made it uncomfortable, it presented no real danger to the rig at this time, since the pumps in operation were able to remove it easily. Pillows were stuffed into, and plywood nailed over, the broken ventilator and windows in efforts to reduce the amount of water entering the living quarters.

15. At about 0430 on 12 March, Mr. Dishongh, having become apprehensive concerning the condition of the rig, contacted his offices in Morgan City and New Orleans by radio. He requested that more tugs be dispatched to assist and that the Coast Guard be notified that the rig was having difficulty and request that they stand by in the event assistance would be required. Two additional tugs, the GULF MISS and LIONEL TIM, were arranged for. It would be at least four hours before the nearest one could reach the rig.

16. After daylight the ELFER GUIDRY began attempts to put her tow line back aboard the rig. Wind was now estimated at 50 knots and seas running as high as 20 feet. After several attempts the tow line was finally secured on the port stern towing bitt of the JULIE ANN at about 0800. Approximately 30 minutes later the LADY JILL parted her tow line which was made fast on the starboard forward towing bitt. The towing gear of the LADY JILL was made up in the same manner as the gear of the ELFER GUIDRY and parted about midway of the wire bridle. This bridle was reported to have been about 60 days old, had been used on 5 or 6 jobs, and was in excellent condition. With the GULF PRINCE on the port bow and the ELFER GUIDRY on the port stern, the rig canted to starboard bringing her port side up into the seas. At about this time the GULF PRINCE requested that the rig drop her anchors to assist in holding the rig up into the sea. This request was not carried out because of the danger to personnel going on deck, and the possibility of damage to submerged pipe lines which might be in the area. At about 0900 the LADY JILL's tow line was made fast again on the starboard stern towing bitt, which was the most protected place on deck, and the only location in which this line could be taken.

17. Shortly after this, several sections of drill collar, which had been chained on deck next to the starboard pipe rack, came adrift from the combined effect of the pitching, rolling and heavy seas breaking over the deck. The LADY JILL was attempting to bring the rig around to port to hold her head up into the sea and in so doing her tow line led slightly around the bow of the rig. This apparently chafed the line and it parted again. Up until this time the rig, although riding rather badly and being uncomfortable, had been in no real danger. The available pumping capacity was more than adequate to handle any water entering the hull, and most of the electrical installation was not endangered from the fracture in the main deck. However, as the drill collars began to shift they struck ventilators and other attachments on the deck, fracturing some and carrying others completely away. This opened holes in the deck of the barge as large as 24 inches in diameter. Attempts were made to resecure these drill collars with little permanent success, and most of the collars were eventually lost overboard. The damage on the main deck was confined to that plating over the machinery space. As more and more damage was incurred, water in increasing quantities began entering the machinery space. A diesel-driven Halliburton mud pump was connected to the bilge suction and proved adequate to keep the flooding under control. The real peril lay in the fact that water entering through the damaged deck plating soon shorted out two of the three generators on board. The Halliburton pump depended upon an electric motor-driven pump for cooling water. If this last generator were lost, the rig would then become helpless as soon as the diesel engine overheated and stopped.

18. At about 0915 it was decided, in the interest of safety of personnel on the rig, to begin evacuation. The Coast Guard, which had been alerted earlier, had a fixed wing aircraft in the area and this aircraft requested the dispatch of helicopters to assist in the evacuation. A crew boat, STANDBY ONE, working for Chevron Oil Company, was in the vicinity and came to the assistance of the rig. Due to her small size and the heavy seas she was unable to come alongside to remove any personnel. The supply boat MONTCO, which was standing by a Pan American rig located 4 or 5 miles away, was also sent to the assistance of

the JULIE ANN. In spite of the adverse conditions, the MONTCO backed in sufficiently close on the starboard side of the rig so that nine men were able to jump aboard. In making this transfer three of the nine men were injured slightly, as described in paragraph 4. The MONTCO departed with these men at about the same time the first Coast Guard helicopter arrived on the scene. The nine men were taken to a nearby DIXILYN rig which was drilling on location.

19. At about 0645 on the morning of 12 March 1968, the Coast Guard Rescue Coordination Center in New Orleans ordered the Coast Guard Air Station, Mobile, Alabama, to launch the ready aircraft to go to the assistance of the JULIE ANN. The ready aircraft, #1294, was provided with three droppable pumps and was airborne about 0700 with LT Nelson KEELER, USCG, in command. Because of the strong winds encountered, the Coast Guard aircraft did not arrive on scene until shortly after 0900. Enroute LT KEELER had been in communication with Petroleum Helicopters in the area and they advised that they could not evacuate personnel from the JULIE ANN because the erratic motion of the helicopter pad, located on top of one of the legs, made it impossible to set down. Not being equipped with hoisting gear they could not pick up personnel while hovering. After arrival on scene, LT KEELER was advised by the rig that if it were possible to get the droppable pumps aboard the rig attempts would be made to use them in de-watering efforts. However, because of the high winds, estimated at 50 knots, it was impossible to make an air drop directly on the rig. From the experience of the STANDBY ONE and the MONTCO, it was considered too hazardous to personnel to drop the pumps in the water, have a vessel retrieve them, and then try to place them on board. All consideration of getting the portable pumps aboard was abandoned and efforts concentrated on safely evacuating personnel. LT KEELER requested helicopters to assist.

20. CAPT. John A. FIRSE, USAF, an exchange pilot on duty with the Coast Guard at New Orleans Air Station, was airborne on a routine helicopter training flight when he received orders to proceed to Point au Fer where he would be met and escorted by a fixed wing airfraft to the scene of the JULIE ANN distress. His co-pilot at this time was LTJG Ray C. HINER, USCG, and his crewman was AT3 W. J. KNIGHT, USCG. CAPT. FIRSE proceeded to Point au Fer where he was met by Coast Guard aircraft #1272, which had been diverted from routine patrol for this escort duty. CAPT. FIRSE arrived at the JULIE ANN at just about the time the M/V MONTCO was evacuating the first nine men from the rig. He first hovered over the helicopter platform to evaluate the possibility of setting down. Because of the high winds and the motion of the rig he ruled this out as an impossible maneuver. He then approached the rig from the stern and found that by hovering as low and as near the rig as possible, that his crewman could pass a tag line to the rig to be used to pull the personnel basket over on deck. The men then could be hoisted away, one at a time. Seven men were removed using this procedure and taken to a rig about one mile away. CAPT. FIRSE had sufficient fuel for one more pass at the rig and this time was able to remove four men using the same procedure. These men were transported to the other rig and CAPT. FIRSE proceeded to a refueling rig and stood by in the event further assistance should be required. A second

helicopter had been dispatched from the Coast Guard Air Station, New Orleans, with CDR James I. DOUGHTY, USCG, in command, LTJG Terry D. BEACHAM, USCG, as co-pilot, and AT2 Gary A. SMITH, USCG, as crewmember. CDR DOUGHTY proceeded to Morgan City for refueling and then, escorted by LT KEELER in fixed wing aircraft #1294, he had proceeded to the JULIE ANN. He arrived as CAPT. FIRSE was making his second pickup. As soon as CAPT. FIRSE cleared the area for the second time, CDR DOUGHTY moved in and utilizing the same procedure removed five men from the rig and transferred them to a nearby platform. Four men remained aboard the JULIE ANN and they requested that their pickup be delayed as long as possible so they could make an additional tug fast which was expected on scene shortly. The tug GULF MISS arrived and was made fast just as CDR DOUGHTY, due to low fuel, had to begin his last pickup. Using the same procedure as before, the last four men were evacuated and transported directly to Morgan City. The last men to leave the rig were Mr. W. Patton, Underwriter's representative, J. Roberts, A. M. Parker and C. L. Cranford, all Dixilyn employees. Before leaving, Roberts checked all spaces for personnel and the condition of equipment and machinery. At this time the diesel-driven Halliburton pump, several electric-driven pumps, and the last generator were still in operation. Flooding in the machinery spaces was not serious at this time as the pumps were adequately controlling the water. The valve in the line between the mud room sump and the machinery room sump was left open so that the water would drain from the mud room and be pumped overboard.

21. Evacuation of all personnel had been completed by 1300 on 12 March. Throughout the afternoon the three tugs continued to hold the rig head up into the sea and kept her clear of all structures in the area in accordance with their last instructions from the rig. The LADY JILL, which had parted her tow line and had been unable to make fast again before evacuation, was also standing by. At some time between 1400 and 1500 the few remaining lights on the deck house and derrick went out when the last generator failed. After the generator failed, the rig began to slowly take on a port list which by 1800 had become appreciable.

22. Throughout the afternoon of 12 March the rig continued to slowly drift south-southeasterly under the influence of the wind and seas, but by 2100 the wind, which had veered northwesterly, began to moderate slightly and the tugs were making slow progress toward the new location in the South Marsh Island area.

23. By 2400, 12 March 1968, the JULIE ANN was listing so that her port deck edge was almost completely submerged and she was settling by the stern. At 0035, 13 March, she rolled over to port, capsized and sank in approximate position Latitude 28° 25' N, Longitude 91° 26.5' W, in Block 276, Eugene Island Area in the Gulf of Mexico. The tugs followed orders until the last possible minute, keeping their tow lines fast to the rig until she was going under, at which time they slipped their tow lines to prevent any damage to their vessels or injury to personnel. It was their intent to hold on, hoping the rig might float, even though capsized. The tugs placed a marker buoy at the location and stood by until dismissed by DIXILYN Corporation.

24. The rig, valued at $4,000,000, is considered a total loss.

CONCLUSIONS

Based upon the foregoing Findings of Fact it is concluded that:

1. The JULIE ANN capsized and sank in Block 276, Eugene Island Area in the Gulf of Mexico at about 0035, 13 March 1968, due to the unexpectedly heavy weather which was encountered while moving to a new location.

2. As a result of this heavy weather the rig sustained the following damage:

a. Heavy seas coming aboard broke a ventilator and several windows in the crew's quarters located in the deck house.

b. A fracture developed in the deck plating in the vicinity of the derrick's port skid rail. The exact cause of this crack cannot be determined nor can it be ascertained whether the crack occurred in a weld or in the base metal. The plating had been renewed within the previous three months. A distinct possibility is that the fracture was caused by the skid rail trying to pull itself out of the plating under the high reaction forces imposed by the derrick which was being subjected to large acceleration forces. It is estimated that the rig was rolling about 8° to 10° in the seaway.

c. Subsequent to the fracture in the deck plating, further damage was incurred when gear on deck, principally sections of drill collar, came adrift. While shifting back and forth from the motion of the rig and the effect of seas coming aboard, this gear broke ventilators and punctured the deck plating over the port after section of the machinery space. Of all the damage incurred, this was the most extensive and contributed most to the flooding and eventual capsizing of the rig.

3. The pumping capacity of the rig was sufficient to control the flooding. However, the water coming through the damaged deck plating grounded out the last remaining operating generator, causing loss of the pumps. This happened about two hours after the rig was abandoned. With pumps no longer in operation, the water entering through the deck began accumulating in the machinery space. Since the holes in the deck were on the port side, water became entrapped on this side by structural members, equipment foundations, etc., causing a gradual list to port. As the depth of water increased in the machinery space, total flooding took place since there were no longitudinal bulkheads. The free surface effect became more pronounced. The list to port continued to increase until the deck edge was submerged, resulting in rapid flooding of the machinery space. The vessel continued to flood and list until positive stability was lost and the rig capsized. It sank since there was no compartmentation sufficient to provide adequate buoyancy.

4. The personnel in charge of the move were experienced, competent and highly qualified. The operation was generally well planned and supervised.

5. The move was generally in compliance with the intent of the publication: "Manual of Safe Practices in Offshore Operations."

6. The JULIE ANN was properly equipped with lifesaving equipment. This consisted of six life floats with a combined capacity for 94 persons, six ring lifebuoys, and an approved life preserver for each person on board. All lifesaving equipment was in good condition.

7. The windows in the deck house were inadequate for offshore service.

8. The method used in securing the drill collars was inadequate.

9. The rig was properly loaded and had adequate intact stability.

10. Those in charge acted in the best interests of safety in deciding to abandon the rig rather than risk injury or death to personnel by remaining aboard when there was serious doubt as to their ability to save the vessel. It is further concluded that all personnel had performed their duties competently in the damage control efforts, prior to evacuation.

11. The rescue operations carried out by the M/V MONTCO and the two Coast Guard helicopters were accomplished under very difficult and hazardous conditions, requiring a high degree of skill on the part of the crewmembers.

12. At the commencement of the move, the weather was good with the wind from the east to southeast an estimated 10 to 20 knots, with 2 to 3 foot seas. The weather remained good for about 6 hours, but shortly after 1200, 11 March, the wind unexpectedly began to increase and veer into the southwest. The seas increased rapidly and by 1645, 11 March, were running 10 feet. At daylight, 12 March. maximum weather conditions were encountered with westerly winds of 50 knots and seas of 20 feet. By 2100, 12 March, the wind had veered into the northwest and begun to slowly moderate.

13. The towing gear on the tugs was in good condition and parted as a result of surging. The total horsepower of the tugs originally contracted for was sufficient to move the rig in accordance with the designer's recommendation. The tugs performed their duties well, keeping the rig under control and clear of other structures in the area, and finally letting go only when the rig was sinking. To have held on any longer would have needlessly endangered their own vessels and crewmembers.

14. There is evidence of violation of 46 USC 672(i) in that all crewmembers of the GULF PRINCE, ELFER GUIDRY, LADY JILL, GULF MISS and MONTCO did not have Specially Validated United States Merchant Mariner's Documents. This did not contribute to the casualty.

15. There is evidence that the GULF PRINCE, ELFER GUIDRY, LADY JILL, GULF MISS and MONTCO were not manned in accordance with 46 USC 672(a), in that 65% of their deck crew, exclusive of licensed officers, were not Able Seamen. This did not contribute to the casualty.

16. There is evidence that the GULF PRINCE, ELFER GUIDRY, LADY JILL, GULF MISS and MONTCO were in violation of 46 USC 643(1), in that they did not submit Form CG735T, "Master's Report of Seamen Shipped or Discharged," for the month of March, 1968, the month of the casualty. This did not contribute to the casualty.

17. There is evidence that the ELFER GUIDRY and LADY JILL were in violation of 46 USC 88, in that they did not have a Coastwise Load Line assigned and marked upon the vessel. This did not contribute to the casualty.

18. There is evidence that the MONTCO was in violation of 46 USC 222, in that she was not properly manned in accordance with her Certificate of Inspection. This did not contribute to the casualty.

19. There is no evidence of misconduct, inattention to duty, negligence or incompetence on the part of any of the personnel involved.

20. There is no evidence that any personnel of the Coast Guard or any other Government agency contributed to the casualty.

RECOMMENDATIONS

Based upon the facts adduced from the Investigation of the casualty and the Conclusions of the Board, it is recommended that:

1. The National Offshore Operations Advisory Panel be advised that the operators of mobile drilling rigs should remove or properly secure loose gear prior to moving. The stowage and lashings should be designed and used to accommodate heavy weather in all cases, regardless of the weather anticipated.

2. The National Offshore Operations Advisory Panel be advised that all windows and portholes installed in mobile drill rigs should be designed for marine use in offshore service.

3. Further investigation of possible violations of 46 USC 672(i) be initiated based on Conclusion 14.

4. Further investigation of possible violations of 46 USC 672(a) be initiated based on Conclusion 15.

5. Further investigation of possible violations of 46 USC 643(1) be initiated based on Conclusion 16.

6. Further investigation of possible violations of 46 USC 88 be initiated based on Conclusion 17.

7. Further investigation of possible violations of 46 USC 222 be initiated based on Conclusion 18.

E. J. WORREL
CAPTAIN, U. S. COAST GUARD
CHAIRMAN

P. C. GAUCHER
COMMANDER, U. S. COAST GUARD
MEMBER

J. C. HANSON
LIEUTENANT COMMANDER, U.S. COAST GUARD
MEMBER & RECORDER