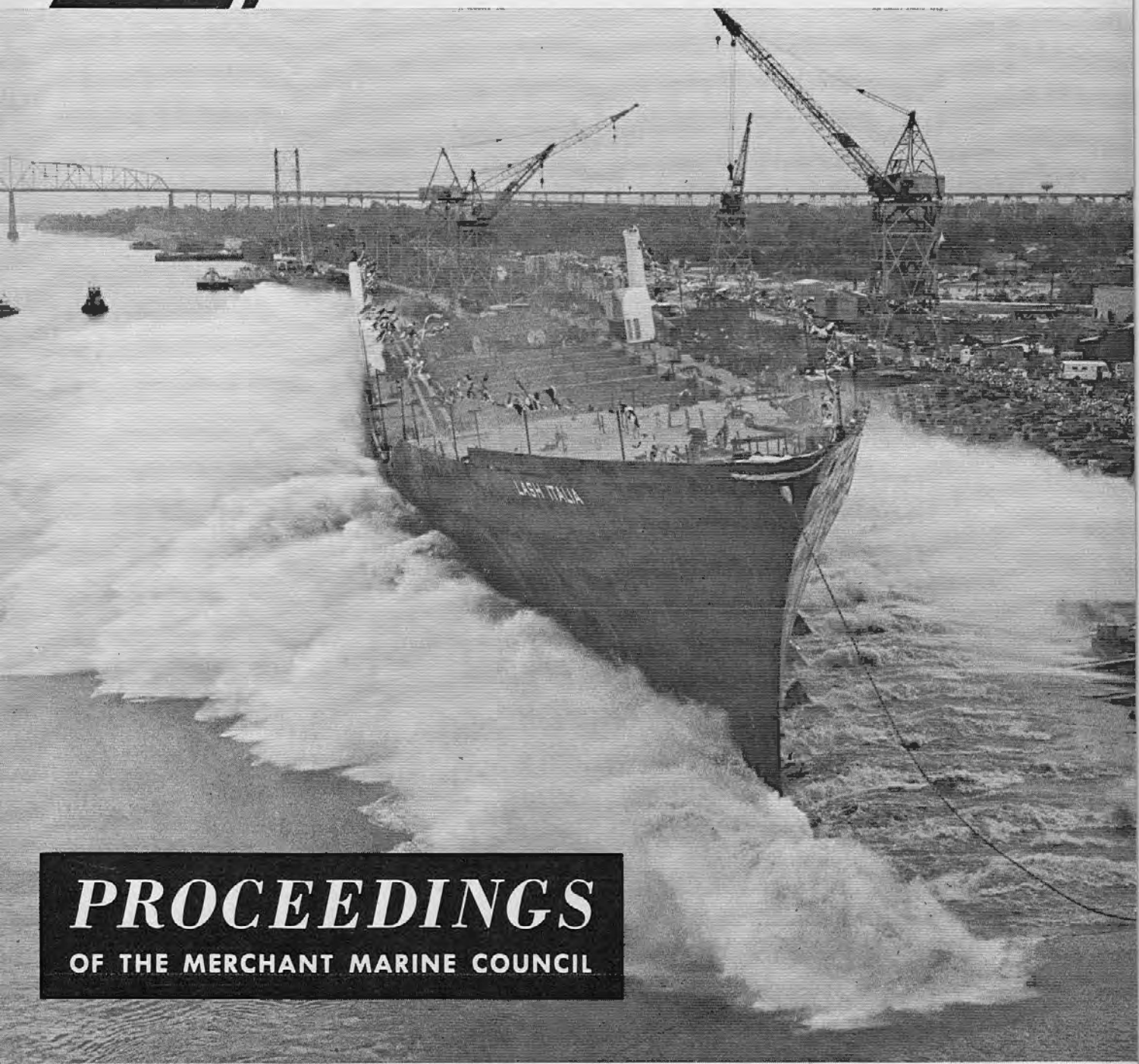
COAST GUARD



PROCEEDINGS

OF THE MERCHANT MARINE COUNCIL

Vol. 27, No. 11 CG-129 November 1970

IN THIS ISSUE . . .

The Inflatable Liferaft as a Rescue Vehicle . . .

Drilling Rig *Dixilyn 8, Julie Ann* Capsizing and sinking . . .

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COVERS

FRONT COVER: The first of the 11 LASH (lighter aboard ship) vessels *Italia* was launched on July 11, 1970 at Avondale Shipyards Inc., New Orleans, La.

Of the present 11 ships contracted for, five are for Prudential-Grace Steamship Lines, and the other six are for the Pacific Far East Lines, all to be constructed by Avondale Shipyards Inc.

The LASH design was developed by the New Orleans naval architectural firm of Friede & Goldman. Vessels of this type can carry 73 cargo lighters approximately 61 feet long and approximately 50 20-foot cargo containers. The ships are 820 feet long have a service speed of about 23 knots.

BACK COVER: A safety poster of the *American Waterways Operators, Inc.*

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PROCEEDINGS

OF THE

MERCHANT MARINE COUNCIL

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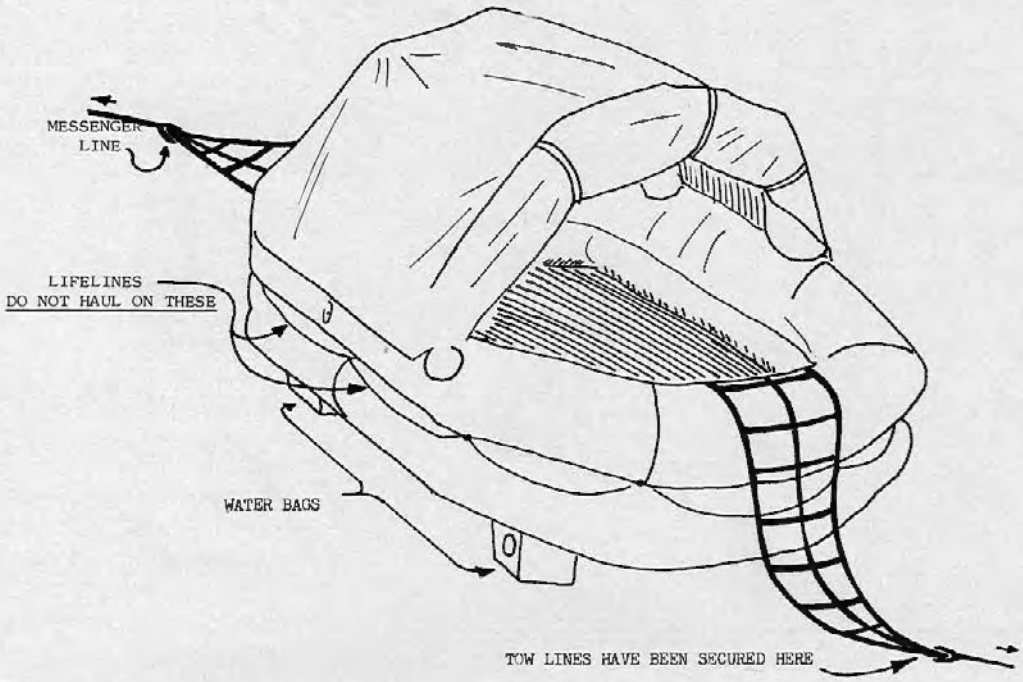


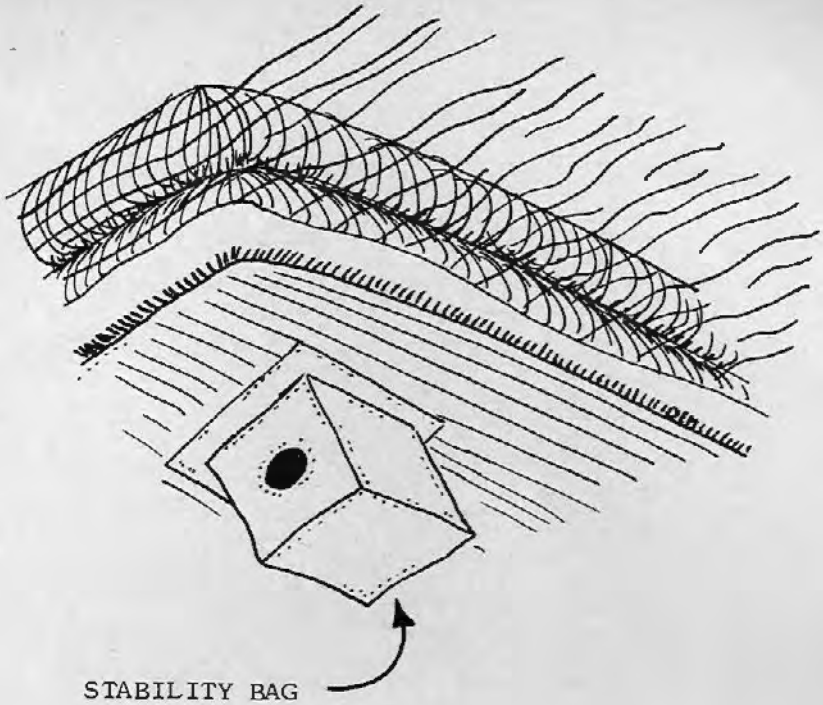
THE INFLATABLE LIFERAFT AS A RESCUE VEHICLE

THE MASTER OF a merchant vessel is confronted with certain decisions during his career at sea. One of these decisions is to use all of his resources to rescue anyone in distress. Once committed, he will use any means at his disposal to preserve life.

Sea and weather conditions often are dangerous and do not allow the large rescuing vessel to approach the distressed vessel sufficiently to effect a rescue. The same weather conditions also rule out the use of a lifeboat as a rescue vehicle. The master must decide whether to stand by the stricken vessel or begin using unorthodox methods to rescue the survivors. The inflatable liferaft, a craft designed as a survival appliance, acquires a different function and becomes a major factor in a rescue plan.

Here are two cases which show the use of the inflatable liferaft in a rescue operation. The first case concerns the unsuccessful attempt by the SS *Export Ambassador* to rescue the crew of the Korean fishing vessel *KF2830* with the use of an inflatable liferaft. The second case involves the USNS *Victoria* (T–AK 281) successfully using inflatable liferafts to rescue the crew from the yacht *Georgiana.*

At approximately 0900 on April 6th of 1969, the SS *Export Ambassador,* en route from Inchon, Korea, to Yokosuka, Japan, sighted the Korean fishing vessel *KF2830.* The *KF2830* had her stern submerged and decks awash. With gale



VIEW OF STABILITY BAG FROM IN WATER BENEATH RAFT

force winds and a very rough northwesterly swell, a red cloth was sighted on the forestay of the *KF2830* and four or five crew members were huddled in the bow waving articles of clothing.

"As the sea was too rough to launch a lifeboat; and as the Fleming gear equipped boats are very poor handling in rough weather; the master decided to attempt to float one of the inflatable rubber liferafts down to the fishing vessel. After inflating the raft on deck, a 3-inch manila line was attached, buoyed at intervals by life jackets and was attempted to be floated down to the distressed seamen. The first raft was launched and landed upside down in the water and attempts to right it caused the manila line to part from the raft and the raft was lost. A second attempt was made, but this raft was lost when the rings to which the line was attached ripped off from the raft. A rescue was effected by maneuvering close by the fishing vessel and bringing the men directly aboard." [1]

The USNS *Victoria* (T–AK 281) did make a successful rescue with liferafts of the crew of the yacht *Georgiana*. Conditions at the time were 15-foot west northwesterly swells and 25 to 40 knot northwesterly winds. The ketch was sighted riding to on a sea anchor and with bare poles. Several people were sighted on deck, waving lanterns and torches.

The *Victoria* was brought as close as possible to the *Georgiana* and efforts were made to communicate by blinker, radio, and megaphone. Communication could not be established, however, any movement away from the yacht caused the crew to renew the firing of flares and wave torches. The yacht was kept in sight overnight as she did not appear to be in immediate danger of foundering. At daybreak, the *Victoria* closed with the yacht to permit voice communication. The yacht's captain requested that he and his crew be removed as soon as possible.

"Rather than risk launching and retrieving a lifeboat, it was decided to remove the people by an inflatable liferaft. Lines were passed to the *Georgiana*, but the first raft was lost when its painter parted. The wind began to freshen and the *Georgiana* appeared to be floating lower in the water, and her crew was becoming increasingly agitated in pleading for rescue." [2] Another line passed and a second raft launched. As soon as the raft was inflated, the yacht's crew pulled the raft over and jumped aboard. Yacht's crew were pulled back to the *Victoria* and lifted aboard with ladders and bowlines. The *Georgiana* drifted astern and sank about 1300. The master of the *Victoria* stated that it was extremely doubtful that the rescue could have been accomplished with a conventional lifeboat.

The inflatable liferafts are not designed for rescue attempts. The liferafts lack strength for withstanding the strain that will be exerted upon them during a rescue.

As a rescue vehicle, the inflatable liferaft presents a problem. Its nonrigid construction makes it a good vehicle in rough water, but the same construction makes it vulnerable to ripping and puncture.

The liferaft inflates easily and quickly, an excellent capability in survival equipment. While still packed in its fibrous glass case, the liferaft and case has a minimum buoyancy, making it difficult to float an uninflated liferaft to a distressed vessel.

Most rescues involving inflatable

[1] Extract from the official log of the SS *Export Ambassador*.

[2] Extract from the official U.S. Coast Guard file—"Inflatable Liferafts."

liferafts have been accomplished by hauling a raft back and forth between two vessels. There are problems to be considered here. Although the rafts are designed to withstand towing at five knots, there are a limited number of locations to which tow lines may be attached. Some of the rafts have four heavy "D" rings, two at the bow and two at the stern, designed to serve as towing connections. On other rafts, each bow and stern boarding ladder forms an apex of webbing to which the tow lines can be tied as shown in the diagram. It is important to note that the lifelines on the periphery of a raft are too weak to use for towing purposes. A suggestion to a method of towing has been to encase the raft in a cargo net, with the strain on the net, not on the raft.

Another deterrent to hauling the rafts through the water is the stability bags built into the bottom of the rafts. These bags are designed to fill with water and improve the raft's seaborne stability but they tend to act as a drogue and make the hauling very difficult. In addition these bags place a strain on the bottom of the raft which might increase to the point where the bottom could be ripped. The advantages of these bags from the stability viewpoint, outweigh their disadvantages and the mariner is cautioned not to alter them in any way. All inflatable liferafts are outfitted with the usual survival equipment such as water, provisions, etc., which are kept inside the raft. This equipment can add as much as 150 pounds to the total weight of the liferaft. The advantage of removing this equipment is their weight adds to the strain that the raft is subjected and the 150 pounds could be another man saved.

When the time comes to use the raft, casualty studies have shown that an on-deck inflation is the best beginning. To protect the raft, the deck area should be cleared of all sharp objects. Protrusions that could damage the raft should be padded and covered. The survival equipment should be removed and the towing lines attached *before* the raft is put into the water. Liferafts put overside and inflated have had the sea painter inflation line break free, much to the master's or mate's horror. This line is designed to break free upon inflation of the raft. This prevents the sea painter inflation line, which is attached to the vessel from dragging the liferaft down with the sinking vessel.

With the raft inflated on deck, purged of all unnecessary equipment and with the towing lines attached the lines should be shot to the distressed vessel to form a link between the two ships. The raft put over the side and rescue operations begun, each vessel pulling the raft back and forth. The condition of the personnel on the vessel in distress will also contribute to the difficulties described here. It is suggested that a strong seaman equipped with a lifejacket and secured by a lifeline be near the waterline to assist the survivors. Casualty studies indicate that lifejackets should be placed in the raft for use by the survivors.

Rescues have been made with the inflatable liferaft but it remains the master's decision to do so. ⚓

New IMCO Publication Merchant Ship Search and Rescue Manual (MERSAR)

The above publication has recently been published by the Organization in fulfillment of the decision taken by the Maritime Safety Committee at its 21st session (par. 77 of MSC XXI/23).

The purpose of this International Manual is to provide guidance for those who during emergencies at sea may require assistance from others or who may be able to render such assistance themselves. In particular, it is designed to aid the master of any vessel who might be called upon to conduct search and rescue operations at sea for persons in distress.

The materials in the publication cover such aspects as coordination of search and rescue, action by a ship in distress, action by assisting ship, planning and conducting the search as well as instructions on communications between parties concerned.

The Maritime Safety Committee which approved the Manual at its 21st session recommended to Member Governments to put the Manual into effect forthwith by giving it wide distribution and encouraging vessels under their flag to adhere to it as necessary.

The Committee also gave provisional approval for use on an experimental basis for the purposes of search and rescue certain signals and their corresponding meanings, with a view to taking an early opportunity to amend the International Code of Signals so as to include there the signals in question.

Member Governments will receive free copies of the Manual, one in English or one in French; additional copies, if necessary, may be purchased. The publication is also available for sale to the public. Requests should be sent to the Publications Section, Inter-Governmental Maritime Consultative Organization, 104 Piccadilly, London W1V OAE. The price of the Manual is £0.10.0d. or $1.20. The publication is at present available in English; the French version will follow shortly.

The publication is intended for use on the bridge of every vessel and also by shore-based search and rescue services and in marine training institutions. ⚓

DRILLING RIG DIXILYN 8, JULIE ANN CAPSIZING & SINKING IN GULF OF MEXICO

The actions taken on the *Dixilyn 8, Julie Ann* case follow in chronological order

MARINE BOARD OF INVESTIGATION

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, La. 70380.
Certificate of Inspection	Uninspected.
Load Line Certificate	Not required.

3. The *Julie Ann* was a tripod, selfelevating, offshore drilling platform built in Vicksburg, Miss., in 1957 by R. G. LeTourneau, Inc. It was constructed as a triangular shaped floating barge equipped with three electromechanically 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, mudroom, and living quarters. A transverse watertight bulkhead separates the machinery space and the mudroom. In operation it was towed to the drilling site, the legs lowered to the ocean bottom and the hull structure selfelevated on the spuds to the desired height above the water for drilling operations. This procedure was reversed for moving to a new drilling location.

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, Ala., suffered a broken left heel; Mr. Maxie B. Williams of Rt. 3, Box 284, Waynesboro, Miss., suffered a fracture of the small toe on his left foot; Mr. Camile P. Templet of Parish Road, Box 38, Thibodaux, La., 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 2 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 Corp., 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, La. Mr. Roberts was Maintenance Superintendent aboard the rig. He had been employed by Dixilyn Corp. for about 8 years, had made many moves with the *Julie Ann* and similar rigs. He had also attended a 1-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 Corp. 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 U.S. Merchant Mariner's Documents, and all of these vessels were not properly manned with the required Able Seamen.

Name	*Gulf Prince.*
Official Number	292934.
Type	Towing.
Gross Tons	197.
Net Tons	134.
Length	98.5.
Breadth	29.2.
Depth	12.5.
Propulsion	Motor.
Horsepower	2,400.
Home Port	Houma, La.
Owners	Gulf Prince, Inc., Rt. 1, Box 90, Calliano, La.
Person in Charge	Robert Verret, Box 481–H, Cutoff, La. 70345.
License	Ocean Operator.
Merchant Mariner's Document	Z–1270228.
Certificate of Inspection	Uninspected.
Load Line	Yes.
Name	*Elfer Guidry.*
Official Number	506455.
Type	Towing.
Gross Tons	199.
Net Tons	135.
Length	98.8.
Breadth	30.0.
Depth	13.9.
Propulsion	Motor.
Horsepower	3,000.
Home Port	Houma, La.
Owners	Lockport Tugs, Inc, P.O. Box 250, Lockport, La.
Person in Charge	Anatole J. Pitre, Rt. 1, Box 367, LaRose, La. 70373.
License	None.
Merchant Mariner's Document	None.
Certificate of Inspection	Uninspected.
Load Line	None.
Name	*Lady Jill.*
Official Number	511695.
Type	Towing.
Gross Tons	178.
Net Tons	121.
Length	106.5.
Breadth	28.0.
Depth	9.0.
Propulsion	Motor.
Horsepower	2,400.
Home Port	Houma, La.
Owners	J. A. Gravois, Jr., 308 South Bayou Drive, Golden Meadow, La. 70357.
Person in Charge	Malco Joseph Guidry, Rt. 3, Box 85, Cutoff, La. 70345.
License	Ocean Operator.
Merchant Mariner's Document.	None.
Certificate of Inspection	Uninspected.
Load Line	None.
Name	*Montco.*

Official Number	294631.
Type	Supply.
Gross Tons	189.
Net Tons	128.
Length	126.7 feet.
Breadth	32.0.
Depth	11.4.
Propulsion	Motor.
Horsepower	1,180.
Home Port	Houma, La.
Owners	Montco, Inc., P.O. Box 471, Golden Meadow, La. 70357.
Person in Charge	Benton Danos, Rt. 2, Box 576, Cutoff, La. 70345.
License	Ocean Operator.
Merchant Mariner's Document.	None.
Certificate of Inspection	28 November 1967, New Orleans, La.
Load Line	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	1,200.
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, Tex. 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 6,500 horsepower was recommended by the designer of the rig for towing in good weather, and the tugs provided had a combined horsepower of 7,800. 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 million 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 13½ feet, giving a freeboard of about 6½ 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 Corp., 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 3 hours, the time estimated to cover the 60 to 65 miles was roughly 17 hours, and it was expected to take about 3 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 5 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 mudroom sump. The sump in the mudroom 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 4 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 bit, 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 mudpump 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 Co., 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, Ala., to launch the ready aircraft to go to the assistance of the *Julie Ann.* The ready aircraft, No. 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 Lieutenant 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, Lieutenant 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 dewatering 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. Lieutenant 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 aircraft 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. Captain Firse proceeded to Point au Fer where he was met by Coast Guard aircraft No. 1272, which had been diverted from routine patrol for this escort duty. Captain 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 1 mile away. Captain 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 Captain 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. Commander Doughty proceeded to Morgan City for refueling and then, escorted by Lieutenant Keeler in fixed wing aircraft No. 1294, he had proceeded to the *Julie Ann*. He arrived as Captain Firse was making his second pickup. As soon as Captain Firse cleared the area for the second time, Commander 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 Commander 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 mudroom sump and the machinery room sump was left open so that the water would drain from the mudroom 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 sometime 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 Corp.

24. The rig, valued at $4 million, 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 ascer-

tained whether the crack occurred in a weld or in the base metal. The plating had been renewed within the previous 3 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 2 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 deckhouse 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 U.S. 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 percent 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.

17 JUNE 1968.

COMMANDANT'S ACTION

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 3 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 he 10 to 20 knots from an easterly to southeasterly direction. The wave height was estimated to be 2 to 3 feet.

3. Dixilyn Corp., 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 5 feet. At 1645, waves were estimated at 10 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 10 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 qnarters. 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.

14 MAY 1969.

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

ACTION BY NATIONAL TRANSPORTATION SAFETY BOARD

This casualty was investigated by a U.S. Coast Guard Marine Board of Investigation convened at New Orleans, La., 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:

/s/ JOHN H. REED,
Chairman.

/s/ OSCAR M. LAUREL,
Member.

/s/ FRANCIS H. MCADAMS,
Member.

/s/ LOUIS M. THAYER,
Member.

ISABEL A. BURGESS,
Member.

Not participating.

Seamanship Trophy Awarded Posthumously To Richard D. Hughes

The 1970 American Merchant Marine Trophy has been awarded posthumously to Richard D. Hughes, boatswain aboard the ill-fated States Marine Line ship, SS *Badger State*. The announcement of the award was made by Maritime Administrator Andrew E. Gibson in Washington.

The trophy award was established in 1962 to give recognition to U.S. citizens for deeds exemplifying the highest traditions of seamanship and maritime skills.

Mr. Hughes was chosen to receive the award because of his selfless courage, skill, and devotion to duty. He lost his life when the *Badger State* exploded, caught fire, and sank on December 26, 1969, while carrying materiel to support our forces in Vietnam.

The tragic story began in the early morning hours of Christmas Day, about 580 miles north of Midway. The *Badger State* was battling heavy seas of up to 25 feet, when its cargo of explosives, equivalent to 2,000 tons of TNT, broke loose in the holds.

Bosun Hughes took charge of opening the hatches and securing the uncradled bombs. After organizing the work team and directing the job of removing the pontoons that covered the hatch access to the compartment where the bombs had broken loose, he personally descended to the bomb-littered deck, where he built a cradle and wrestled a 2,000-pound bomb into it.

All through Christmas and the following day, Hughes worked without respite, directing the work below decks to secure the ship's lethal cargo. He kept the master of the ship advised of conditions in the holds, with remarkably accurate estimates of the situation. In repeatedly devising solutions for the increasingly dangerous situation, he demonstrated his seaman's skill and experience, and in the face of repeated frustration, he evidenced strength of spirit as well as body far beyond any normal expectation. Despite a severe back injury sustained in his efforts to secure the cargo, Hughes continued to display the highest qualities of leadership and disregard for his own safety.

When an explosion ripped a hole in the side of the ship on December 26, the order was given to abandon ship. Bosun Hughes was one of the last men to leave the vessel. As he went down the Jacob's Ladder, a huge wave washed him into the raging sea. By superhuman effort he managed to struggle aboard an overturned lifeboat and was sitting on top of it when he was again washed off. One of the crew managed to pull him onto a liferaft, but, in an extremely weakened condition and very close to death, he slipped into the sea and was lost.

Richard Hughes' heroic actions aboard the *Badger State* manifested the skill, intelligence, devotion to duty, and bravery that represent the highest traditions of the U.S. Merchant Marine. His gallant struggle to save his ship and his shipmates literally cost him his own life.

Mr. Hughes, who was 37 years old, is survived by his wife Nancy of Gettysburg, Pa.

The trophy (a rotating-type) awarded to Mr. Hughes is a sterling silver cup inscribed at its base with the names of the recipients, Mrs. Hughes was presented with a silver plaque and a duplicate of the trophy's inscription.

NOTE: This was the first presentation of the trophy to be made by a President of the United States. The presentation also represents the first time the trophy has been warded posthumously. ⚓

Helping Radar Rescue

Suppose the worst happens: your ship goes down. You're lucky enough to scramble aboard a lifeboat or inflatable liferaft with some of your buddies. You're all survivors, you came out of it alive. But for how long? You need help, but all you can do is sit and wait and hope your luck continues.

Well, you can nudge Lady Luck a little bit and keep her on your side. You can try to help the rescuers who are probably already searching for you. One simple way to do this is by erecting radar reflective beacons. Metal objects—such as drinking water cans—can be lashed to the tops of upright oars or paddles, and they may help a radar-equipped rescue ship home in on you.

This technique can be particularly helpful in fog and high seas. It could mean the difference between being lost or found. ⚓

Q. Which Coast Guard publication specifies the requirements for cargo handling equipment on tank vessels?

A. "Rules and Regulations for Tank Vessels" (CG–123)

Q. What care is necessary to prevent damage to cargo hose when rigging it for cargo transfer?

A. Before handling hoses it is necessary to assure that the lifting gear is in good order, properly rigged, and of adequate strength. Appropriate slings or saddles should be used to support the hose at about 10-foot intervals where possible rather than single rope slings. Hose should not be dragged, nor should it be lifted from its middle only with both ends hanging down. Topping lifts and runners should be tied off to proper cleats or bitts and never left on winch heads. Hoses must be made up with sufficient slack to allow for vessel movement. Sharp bends should be avoided. Hoses should be protected with chafing gear where necessary. Hose contact with hot surfaces must be avoided.

Q. What signs indicate weakness in cargo hose? What should be done when weak or leaky cargo hose is noticed?

A. Signs of weak cargo hose are pinhole leakage, bulges with liquid underneath, hard bulges on the hose circumference, severe fraying or external abrasion, damaged wire reinforcing or leakage at the nipples. Weak or leaky hose should be replaced when discovered.

Q. What precautions should be taken to prevent leakage and spillage of oil from cargo hose couplings?

A. Gaskets should be used in couplings, and a sufficient number of bolts should be used to secure a tight connection. Drip pans should be placed under connections to prevent spillage.

Q. What action should be taken when a cargo hose coupling leaks during bulk liquid cargo transfer operations?

A. If a spill is imminent, transfer operations should be stopped immediately. If leakage is not stopped by tightening the bolts, cargo transfer should be shut down and the cause determined and corrected.

Q. When transferring bulk liquid cargo, what should you do if the cargo hose got pinched between the vessel and the dock? How can pinching of the hose be prevented?

A. Cargo transfer should be stopped; hose should be examined and replaced if damaged. If hose is undamaged, transfer operations should be restarted slowly, and hose should be watched for leaks. Pinching can be prevented by having vessel's personnel observe the position of the hose frequently so that hose support and moorings will be adjusted as necessary.

Q. What precautions should be taken to prevent oil in DISCONNECTED cargo hose from polluting harbors?

A. When the hose is disconnected, it should be spotted over drip pans and the oil in the hose should be drained to vessel's tanks, to shore lines, or into buckets. Then it should be blanked at both ends while not in use. When installing or removing blanks, the ends of the hose should be spotted over drip pans.

Q. When transferring bulk oil, what should you do if your vessel started to surge excessively?

A. Shut down transfer of oil, and shorten mooring lines.

Q. When a tank vessel is transferring bulk liquid cargo at a dock, what is the duty of the officer-in-charge regarding moorings? Why?

A. The officer-in-charge is to see that sufficient moorings lines are used, that excess slack or tension does not develop in the lines, and that alignment of the vessel and dock manifolds is maintained. Mooring lines must be tended in this manner to prevent pollution resulting from hoses or manifolds being ruptured by strong currents, excessive surging or suction from passing vessels.

Q. Who is responsible for the testing of a tank vessel's cargo discharge piping, relief valves, and pressure gauges?

A. The vessel's personnel.

Q. How often should the cargo discharge piping, relief valves, and pressure gauges on a tank vessel be tested?

A. At least once a year.

Q. When opening and closing cargo valves on an oil tanker, how can you avoid: (1) jamming valves in the open position; and (2) valves not seating properly when closed?

A. When setting cargo valves in the "open" position, you should open the valve all the way and then close it about one-fourth turn in order to be certain that the valve is not jammed in the open position. When closing a cargo valve, you should close it firmly, then reopen it slightly and close firmly again.

Q. When loading bulk liquid cargo, what is the first action you should take if a cargo valve jammed open?

A. Have the cargo flow shut off at the dock.

Q. When bulk liquid cargo is being loaded on a tanker, what precautions should be taken to prevent pollution through sea connections and overboard discharges?

A. Sea valves shall be closed and lashed, or sealed to indicate that they should not be open during cargo loading operations. Under no circumstances shall such valves be secured by locks. The cargo system should be lined up properly so that cargo is not inadvertently discharged through sea connections and overboard discharges. Loading should commence at a slow rate so that water around the vessel may be checked for cargo leakage. The tightness of the system should be checked throughout the loading operation.

AMENDMENTS TO REGULATIONS

Title 46 Changes

Chapter III—Coast Guard (Great Lakes Pilotage), Department of Transportation

PART 401—GREAT LAKES PILOTAGE REGULATIONS

Basic Rates on Designated and Undesignated Waters

On February 28, 1970, a notice of proposed rule making regarding amendments to the Great Lakes Pilotage Regulations (46 CFR 401) was published in the *Federal Register* (35 F.R. 3919). That notice included proposed revision of the basic pilotage rates on designated and undesignated waters. A public hearing regarding the proposal was held on March 26, 1970, in Cleveland, Ohio, and interested persons were given an opportunity to participate in the rule making by submitting written data, views, arguments, or comments or by making oral comments. The data, views, arguments, and comments were considered by the Coast Guard. Thereafter a Memorandum of Arrangements fixing basic rates was executed by the Secretary of Transportation of the United States and the Minister of Transport of Canada, to become effective July 7, 1970. On June 26, 1970, an amendment to the Great Lakes Pilotage Regulations (46 CFR 401), based on the Memorandum of Arrangements, was published in the *Federal Register* (35 F.R. 10434).

Subpart D—Rates, Charges, and Conditions for Pilotage Services

I. Section 401.405 is revised to read as follows:

§ 401.405 Basic rates on designated waters.

Except as provided under § 401.420 the following basic rates shall be payable for all services and assignments performed by United States and Canadian Registered Pilots in the following areas of the U.S. waters of the Great Lakes described in § 401.300, pursuant to the Memorandum of Arrangements, Great Lakes Pilotage:

(a) District 1:

(1) Between Snell Lock and Cape Vincent or Kingston, whether or not undesignated waters are traversed—$332.

(2) Between Snell Lock and Cardinal, Prescott, or Ogdensburg—$166.

(3) Between Cardinal, Prescott, or Ogdensburg and Cape Vincent or Kingston, whether or not undesignated waters are traversed—$240.

(4) For pilotage commencing or terminating at any point above Snell Lock other than those named in Subparagraphs (1), (2), or (3) of this paragraph, $3.30 per statute mile but with a minimum basic rate of—$75.

(5) For a movage in any harbor—$120.

(b) District 2:

(1) Passage through the Welland Canal or any part thereof, $10 for each statute mile plus $35 for each lock transited but with a minimum basic rate of $120 and a maximum basic rate for a through trip of $430. When pilots are changed at Lock 7 on a through trip the basic rates are apportioned as follows:

(i) Between northerly limits and Lock 7—$215.

(ii) Between Lock 7 and southerly limits—$215.

(2) Between Southeast Shoal or any point on Lake Erie west thereof and any point on the St. Clair River or the approaches thereto as far as the northerly limit of the District—$300.

When pilots are changed at Detroit/Windsor on a through trip the basic rates are apportioned as follows:

(i) Between Southeast Shoal or any point on Lake Erie west thereof and Detroit/Windsor—$150.

(ii) Between Detroit/Windsor and the northerly limits—$150.

(3) Between Southeast Shoal and any point on Lake Erie west thereof or on the Detroit River—$190.

(4) Between any point on Lake Erie west of Southeast Shoal and any point on the Detroit River—$190.

(5) Between points on Lake Erie west of Southeast Shoal—$125.

(6) Between points on the Detroit River—$125.

(7) Between any point on the Detroit River and any point on the St. Clair River or its approaches as far as the northerly limit of the District—$190.

(8) Between points on the St. Clair River including the approaches thereto as far as the northerly limit of the District—$150.

(c) District 3:

(1) Between the southerly limit of the District and the northerly limit of the District or the Algoma Steel Corp. Wharf at Sault Ste. Marie, Ontario—$370.

(2) Between the southerly limit of the District and Sault Ste. Marie, Mich., or any point in Sault Ste. Marie, Ontario, other than the Algoma Steel Corp. Wharf—$310.

(3) Between the northerly limit of the District and Sault Ste. Marie, Ontario including the Algoma Steel Corp. Wharf, or Sault Ste. Marie, Mich.—$140.

(4) For a movage in any harbor—$125.

II. Section 401.410 is revised to read as follows:

§ 401.410 Basic rates on undesignated waters

(a) Except as provided under § 401.420 and subject to paragraph (b) of this section, the basic rates to be paid by a ship that has a registered pilot on board in the undesignated waters shall be:

In Lake Ontario..... $60

In Lake Erie	$65
In Lakes Huron and Michigan	$60
In Lake Superior	$65

for each 6-hour period or part thereof that the pilot is on board, plus $60 for each time the pilot performs the docking or undocking of the ship.

(b) When a registered pilot is carried on a ship in a direct transit of the undesignated waters of Lake Erie between Southeast Shoal and Port Colborne, the basic rates referred to in paragraph (a) of this section are not payable unless:

(1) The ship is required by law to have a registered pilot on board in those waters; or

(2) Services are performed by the pilot in those waters at the request of the master.

Effective date. These amendments shall be effective on August 12, 1970.

(Federal Register of August 11, 1970.)

Chapter I—Coast Guard, Department of Transportation

SUBCHAPTER L—SECURITY OF WATERFRONT FACILITIES

PART 126—HANDLING OF EXPLOSIVES OR OTHER DANGEROUS CARGOES WITHIN OR CONTIGUOUS TO WATERFRONT FACILITIES

Control of Transfer of Liquid Cargoes on Waterfront Facilities

1. A notice of proposed rule making was published in the Federal Register of February 28, 1970 (35 F.R. 3916) and in the Merchant Marine Council Public Hearing Agenda dated March 30, 1970 (CG–249). The proposed amendments were identified as Items PH 1–70 to PH 12–70. The Merchant Marine Council held a public hearing on March 30, 1970, in Washington, D.C. on these 12 items in accordance with the terms of the notice. Interested persons were given the opportunity to submit written comments both before and at the public hearing and to make oral comments concerning all the proposed amendments at the public hearing. At the conclusion of the public hearing, the Council at an executive session held nn March 30, 1970, duly considered all the proposed amendments and the comments received.

2. This is the second of a series of documents which concern the amendments considered by the Council at the public hearing held on March 30, 1970. The first document related to the proposals designated as Item PH 11–70 and was published in the Federal Register of June 19, 1970 (35 F.R. 10111). This document concerns the proposal designated as Item PH 12–70 which involves a revision of 33 CFR 126.15(o) dealing with the control of the transfer of liquid cargoes on waterfront facilities. The remaining items of the March 30, 1970 Public Hearing Agenda will appear in subsequent documents.

3. Item PH 12–70 proposed to revise § 126.15(o) to provide a continuous control of the shoreside transfer operations involving bulk liquid and liquefied gas dangerous cargoes, in order to reduce the potential hazards involved. The controls proposed are consistent with comparable regulations for handling the transfer of these products on board the transporting vessels. These controls include the supervisions by trained, competent personnel, the posting of warning signs and the proper maintenance of the transfer system.

4. The Merchant Marine Council has recommended a number of changes in the proposals as a result of a study of the proposals and the submitted comments. The designations of the subdivisions following the paragraphs and subparagraphs have been changed to accord with designations prescribed by the Office of the Federal Register. The other significant changes recommended by the Council are as follows: (a) In paragraph (o)(1) the words "and surveillance" have been added after the word "control"; (b) Paragraph (o)(2)(1) has been amended to require warning signs that comply with 46 CFR 151.45–2(e)(1); (c) Paragraph (n)(2)(ii) has been amended to incorporate a prohibition against welding on the waterfront facility during the transfer of the cargo; (d) In paragraph (o)(4)(ii) the words "or in the vicinity" have been added to require that cargo transfer operations shall not commence or, if started, shall terminate if a fire occurs on the facility, or in the vicinity thereof; (e) Paragraph (o)(4)(iv) has been added to require that cargo transfer operations shall not commence or, if started, shall terminate if requested by the person in charge of the receiving end of the transfer operation; (f) In paragraphs (o)(2)(vi), (o)(3), (o)(5)(ii), and (o)(5)(ii)(d) the words "tank car or tank truck" have been added after the word "barge"; (g) Paragraph (o)(7)(ii) has been changed to require an annual test of the entire cargo pump system instead of an annual test of merely the cargo pump relief valves, as originally proposed; (h) Paragraph (o)(7)(v) has been rewritten to provide that cargo hose shall not be used with a cargo piping system whose maximum allowable working pressure exceeds that of the hose.

5. Accordingly, after due consideration of all the relevant matter, including the comments of the interested persons and the recommendations of the Merchant Marine Council, the Commandant, U.S. Coast Guard has approved the amendments.

(Federal Register of September 11, 1970.)

Approved Equipment

Commandant Issues Equipment Approval

U.S. Coast Guard approval was granted to certain items of lifesaving, and other miscellaneous equipment and materials.

Those interested in these approvals should consult the Federal Register of September 29, 1970, for detailed itemization and identification.

MERCHANT MARINE SAFETY PUBLICATIONS

The following publications of marine safety rules and regulations may be obtained from the nearest marine inspection office of the U.S. Coast Guard. Because changes to the rules and regulations are made from time to time, these publications, between revisions, must be kept current by the individual consulting the latest applicable Federal Register. (Official changes to all Federal rules and regulations are published in the Federal Register, printed daily except Sunday, Monday, and days following holidays.) The date of each Coast Guard publication in the table below is indicated in parentheses following its title. The dates of the Federal Registers affecting each publication are noted after the date of each edition.

The Federal Register will be furnished by mail to subscribers, free of postage, for $2.50 per month or $25 per year, payable in advance. The charge for individual copies is 20 cents for each issue, or 20 cents for each group of pages as actually bound. Remit check or money order, made payable to the Superintendent of Documents, U.S. Government Printing Office. Washington, D.C. 20402. Regulations for Dangerous Cargoes, 46 CFR 146 and 147 (Subchapter N), dated January 1, 1970 are now available from the Superintendent of Documents price: $3.75.

CG No.	TITLE OF PUBLICATION
101	Specimen Examination for Merchant Marine Deck Officers (7–1–63).
108	Rules and Regulations for Military Explosives and Hazardous Munitions (5–1–68). F.R. 6–7–68, 2–12–69, 10–29–69.
115	Marine Engineering Regulations and Material Specifications (3–1–66). F.R. 12–18–68, 6–17–70.
123	Rules and Regulations for Tank Vessels (5–1–69). F.R. 10–29–69, 2–25–70, 6–17–70.
129	Proceedings of the Merchant Marine Council (Monthly).
169	Rules of the Road—International—Inland (9–1–65). F.R. 12–8–65, 12–22–65, 2–5–66, 3–15–66, 7–30–66, 8–2–66, 9–7–66, 10–22–66, 12–23–67, 6–4–68, 10–29–69, 11–29–69.
172	Rules of the Road—Great Lakes (9–1–66). F.R. 7–4–69, 8–4–70.
174	A Manual for the Safe Handling of Inflammable and Combustible Liquids (3–2–64).
175	Manual for Lifeboatmen, Able Seamen, and Qualified Members of Engine Department (3–1–65).
176	Load Line Regulations (1–3–66). F.R. 12–6–66, 1–6–67, 9–27–67, 7–12–68, 6–5–69, 7–26–69, 10–29–69.
182	Specimen Examinations for Merchant Marine Engineer Licenses (7–1–63).
184	Rules of the Road—Western Rivers (9–1–66). F.R. 9–7–66, 5–11–67, 12–23–67, 6–4–68, 11–29–69.
190	Equipment Lists (8–1–68). F.R. 11–7–68, 11–8–68, 11–16–68, 11–19–68, 11–20–68, 12–11–68, 12–18–68, 2–11–69, 2–18–69, 2–21–69, 2–26–69, 3–15–69, 3–27–69, 4–4–69, 4–12–69, 4–19–69, 4–25–69, 4–26–69, 4–28–69, 5–3–69, 5–9–69, 6–18–69, 6–19–69, 7–1–69, 7–15–69, 7–17–69, 9–12–69, 9–25–69, 10–10–69, 10–11–69, 10–22–69, 10–31–69, 11–19–69, 12–13–69, 1–27–70, 1–30–70, 2–3–70, 2–26–70, 3–11–70, 3–14–70, 3–25–70, 4–14–70, 5–7–70, 5–27–70, 7–18–70, 7–21–70, 8–15–70, 9–29–70.
191	Rules and Regulations for Licensing and Certificating of Merchant Marine Personnel (5–1–68). F.R. 11–28–68, 4–30–70, 6–17–70.
200	Marine Investigation Regulations and Suspension and Revocation Proceedings (5–1–67) F.R. 3–30–68, 4–30–70.
220	Specimen Examination Questions for Licenses as Master, Mate, and Pilot of Central Western Rivers Vessels (4–1–57).
227	Laws Governing Marine Inspection (3–1–65).
239	Security of Vessels and Waterfront Facilities (5–1–68). F.R. 10–29–69, 5–15–70, 9–11–70.
249	Merchant Marine Council Public Hearing Agenda (Annually).
256	Rules and Regulations for Passenger Vessels (5–1–69). F.R. 10–29–69, 2–25–70, 4–30–70, 6–17–70.
257	Rules and Regulations for Cargo and Miscellaneous Vessels (8–1–69). F.R. 10–29–69, 2–25–70, 4–22–70, 4–30–70, 6–17–70.
258	Rules and Regulations for Uninspected Vessels (5–1–70).
259	Electrical Engineering Regulations (3–1–67). F.R. 12–20–67, 12–27–67, 1–27–68, 4–12–68, 12–18–68, 12–28–68, 10–29–69, 2–25–70, 4–30–70.
266	Rules and Regulations for Bulk Grain Cargoes (5–1–68). F.R. 12–4–69.
268	Rules and Regulations for Manning of Vessels (5–1–67). F.R. 4–12–68, 4–30–70.
293	Miscellaneous Electrical Equipment List (9–3–68).
320	Rules and Regulations for Artificial Islands and Fixed Structures on the Outer Continental Shelf (11–1–68). F.R. 12–17–68, 10–29–69.
323	Rules and Regulations for Small Passenger Vessels (Under 100 Gross Tons) (7–1–69). F.R. 10–29–69, 2–25–70, 4–30–70.
329	Fire Fighting Manual for Tank Vessels (7–1–68).

CHANGES PUBLISHED DURING SEPTEMBER 1970

The following have been modified by Federal Registers:

CG–239, Federal Register, September 11, 1970.

CG–190, Federal Register, September 29, 1970.

WALK THE LOW SIDE