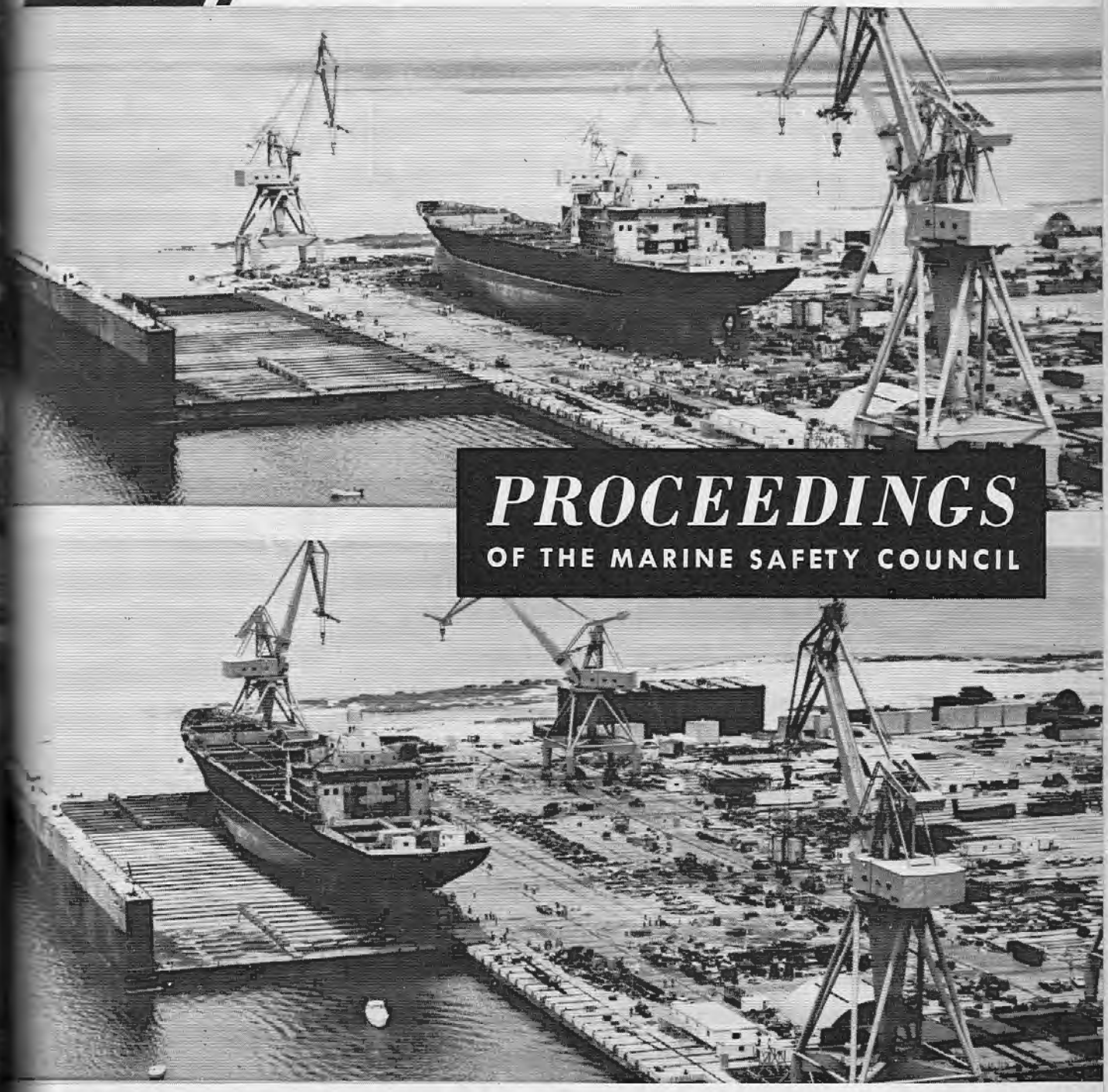
COAST GUARD



PROCEEDINGS

OF THE MARINE SAFETY COUNCIL

Vol. 28, No. 8 CG-129 August 1971

IN THIS ISSUE . . .

PROCEEDINGS
OF THE
MARINE SAFETY COUNCIL

M/V *Theresa F* Capsizing In Gulf of Mexico . . .

Published monthly by the Commandant, USCG, in the interest of safety at sea under the auspices of the Marine Safety Council. Special permission for republication, either in whole or in part, with the exception of copyrighted articles or artwork, is not required provided credit is given to the Proceedings of the Marine Safety Council. All inquiries and requests for subscriptions should be addressed to U.S. Coast Guard (CMC/82), 400 7th Street SW., Washington, D.C. 20591.

CONTENTS

COVERS

FRONT COVER: No Ways. No Splash. The *SS Austral Envoy,* a new 668-foot containership built by Litton Ship Systems in Pascagoula, Miss. for Farrell Lines Inc. is pictured in the module assembly line (top photo) and being moved to the special launching platform. Launched June 26, 1971, the vessel was the first to utilize a new floating drydock concept.

BACK COVER: The Sleeping Giant by Mr. Lewis Belden, Puget Sound Naval shipyard. Reprinted from the fall, 1970 issue of Fathom magazine, Naval Safety Center.

A letter from Rear Admiral Rea requesting comments on Emergency Lifesaving Devices is published on page 142a. It would be appreciated if you would fill out the comment sheet on page 142b detach, fold, and staple. The address is printed on the letter, and no postage is necessary.

DIST. (SDL No. 93)
A: abcdew(2); fghijklmnopqrstuv(1)
B: n(40); c(16); e(5); f(4); gh(3); bkijnq(1)
C: abcdefgimnou(1)
D: i(5); abdeklmnsuvx(1)
E: d(1)
F: kjp(1)
Lists 141M, CG–13, CG–20

CHIEF, OFFICE OF MERCHANT MARINE SAFETY
UNITED STATES COAST GUARD
WASHINGTON, D.C.

TO ALL READERS OF THE PROCEEDINGS OF THE MARINE SAFETY COUNCIL:

The Office of Merchant Marine Safety is engaging in an extensive study into an area of continuing concern to all seafarers, *the emergency debarkation of personnel.*

No study of this subject can be complete, however, without the views of the men whose lives are protected by this equipment. *You,* the seamen, the engineers, the masters, the pilots and the shipowners, are the people we look to for comments and suggestions on such topics as launching of lifeboats and liferafts, improved equipment enabling personnel to descend from high-freeboard vessels and the operation of the lifesaving equipment presently in service.

Your collective background, experiences and ideas for the future cannot be equalled by a shipload of studies. If we are to make the types of changes in the Regulations that will make your working lives safer, we need to know your complaints and your frustrations with present equipment and your suggestions and requests for new equipment.

By writing *your comments* on the reverse side of this page and dropping it in the mail to us *you* will be making an important contribution to the safety of *your life* at sea.

W. F. REA III,
Rear Admiral, U.S. Coast Guard.

DEPARTMENT OF TRANSPORTATION
U. S. COAST GUARD
WASHINGTON, D. C. 20591

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

POSTAGE AND FEES PAID
U. S. COAST GUARD

U.S.MAIL

U.S. COAST GUARD (MMT–3/83)
400 SEVENTH STREET, S.W.
WASHINGTON, D.C. 20591

PLEASE, FOLD, STAPLE AND RETURN TO ADDRESS ON REVERSE SIDE:

EMERGENCY LIFESAVING DEVICES
COMMENTS

USE EXTRA SHEETS IF NEEDED

M/V THERESA F CAPSIZING IN GULF OF MEXICO ON 9 JANUARY 1969

The actions taken on the MV/*Theresa F* case follow in chronological order

MARINE BOARD OF INVESTIGATION

FINDINGS OF FACT

At or about 2015 c.s.t. on 9 January 1969, while enroute from Tampa, Fla., to New Orleans, La., the M/V *Theresa F* capsized approximately 0.4 mile northeast of the Southwest Pass Sea Buoy (LL 2150) in latitude 28° 52.9′ N., longitude 89°25.6′ W. (USC&GS Chart 1272). After shortening hawser and steadying on a northerly heading at reduced speed in preparation for entering Southwest Pass the loaded barge *Freeport I*, in tow of the *Theresa F*, began running erratically from side to side. With the unmanned barge *Freeport I* on her starboard quarter the *Theresa F* took a severe roll to starboard followed by a second heavy roll to starboard from which it did not recover. There were nine crewmembers and one har pilot on hoard the *Theresa F*. Three of the crewmembers lost their lives as a result of this casualty.

The following are the particulars of the vessels involved:

Name	*Theresa F*	*Freeport I*
Official No	516158.	514966.
Service	Towing.	Seagoing Barge.
Gross Tons	196.48.	10851.
Net Tons	133.	10851.
Length (LBP)	132.5.	470.0.
Breadth, Molded	34.5.	80.0.
Depth, Molded	20.29.	42.5.
Propulsion	Diesel—Two GM Model 16–645–Turbo charged Diesel Engines, Twin Screw.	Not applicable.
Horsepower	5000.	Not applicable.
Home Port	Cincinnati, Ohio.	Cincinnati, Ohio.
Where Built	McDermott Shipyard, Morgan City, La.	Avondale Shipyard, New Orleans, La.
Date Built	1968.	1968.
Owners	Midland Enterprises, Inc., 1400 Provident Tower, Cincinnati, Ohio.	Midland Enterprises, Inc., 1400 Provident Tower, Cincinnati, Ohio.
Operators	Red Circle Transport Co., Post Office Box 6098, New Orleans, La., 70114.	Red Circle Transport Co., Post Office Box 6098, New Orleans, La., 70114.
Master	Paul H. Tullis, 616 Memorial Highway, Tampa, Fla. 33615. License: 356754. Certificate: Z–1153909.	Unmanned.
Last inspection for Certification.	Uninspected.	Initial Inspection.
Date/Port	Uninspected.	15 June 1968, New Orleans, La.

List of dead and injured:

a. The following crew members lost their lives as a result of this casualty. Their bodies have been recovered and identified:

Name and address:	Capacity	Next of kin
Cecil M. Futch, age 43, 1215 Johnson Street, Kenner, La. 70062. Z–544293.	Able Seaman	Ann Futch, wife, 1215 Johnson Street, Kenner, La. 70062.
Joseph H. Riffe, age 59, 1713 Oakland Avenue, Portsmouth, Ohio 45662. License No. 294066. Z–668418.	Assistant engineer.	Gladys M. Riffe, wife, 1713 Oakland Avenue, Portsmouth, Ohio 45662.
Domingo R. Molina, age 51, 2400 Kerlerec Street, New Orleans, La. 70119. Z–119736.	Able Seaman	Consuelo Molina, wife, 2400 Kerlerec Street, New Orleans, La. 70119.

All hands might have been lost from the Theresa F, *sister tug of the* Alison C *shown here, had the towing vessel not been equipped with an inflatable liferaft.*

b. The following surviving crew member was incapacitated in excess of 72 hours by a bruised right leg:

Capacity	*Name and address*
Able Seaman.	Ernest A. Nunnery, age 57, 925 Teche Street, New Orleans, La. 70114. BK–040130.

The weather in the general area of the casualty was: A confused sea of 4 to 6 feet with swells from the south; northerly winds from 20 to 30 knots; visibility 10 miles; clear skies and no precipitation. The wind had shifted abruptly from southerly to northerly at about 1600 on the day of the capsizing.

The tug *Theresa F* is equipped with two (2) pilothouses (the upper one constructed of aluminum), has an overall length of 145 feet, beam of 34.5 feet and a 19-foot operating draft above design base line. The tug is designed with a 5.0-foot drag. The molded keel line amidship is 2.23 feet above the design base line. The draft marks on the tug are measured from the design base line, not from the keel. The draft marks are located in this manner so that when the tug is operating at her design drag, the draft readings fore and aft will be the same. A towing winch, located aft of the deck house, has 2,400 feet of 2¼″ wire. The wire leads from the top of the winch drum, a distance of five feet above the main deck. When the tug is in the notch of the barge and pushing, power can be made available to the barge by a cable from the tug. The tug is secured in the pushing position by two backing wires leading from the stern of the barge to the stern of the tug. The wires are shackled into a flounder plate which is hauled tight by a towing winch wire. The *Theresa F* had an Interim Class Certificate for towing service (Maltese Cross Al, Maltese Cross AMS) and an International Load Line Certificate (1966) issued by the American Bureau of Shipping.

The barge *Freeport I* is 472.5 feet length overall, 80 feet wide and 42.5 feet depth with an operating draft of 30 feet. It features rotary plow feeding for the self discharging system. The barge is employed to transport phosphate rock from Tampa, Fla., to Uncle Sam, La. A stern notch is provided for pushing the tow as a single unit. In adverse weather the barge is towed. A 350-foot, 12-inch nylon pendant and chain is led through the bull nose of the barge for towing. Two (2) 10-kw. diesel driven generators which may be started by batteries, and one (1) 100-kw. generator started by air, are on the barge. The 10-kw. generators are operated underway to provide power for lights and barge machinery such as bilge pumps, air compressor and remote anchor drop. Starting air for the 100-kw. generator is maintained by an automatic air compressor. Power for the air compressor is supplied by either the 10-kw. generators or by the cable from the tug.

Two (2) skegs are provided at the stern of the *Freeport I*, port and starboard. These skegs are triangular in shape and are approximately 50 feet long, extending from the base line to the bottom of the barge. They toe in 5 degrees towards the center line going aft. The after ends of the skegs are adjustable. The adjustable portions are about 24 feet high and 16 feet long, shaped to fit the lines of the barge. They may be secured in seven (7) different positions ranging from zero degrees (fore and aft) to fifteen (15) degrees either side in increments of five (5) degrees. To simplify the proper positioning of the skegs for operating personnel, three (3) markings were placed for positioning as follows:

"TOW LOADED" which placed the skegs fifteen (15) degrees outboard; "PUSH LIGHT" which placed the skegs five (5) degrees inboard; "PUSH LOADED" which placed the skegs fifteen (15) degrees inboard. When towing, the skegs are positioned all the way outboard (fifteen degrees) to provide more resistance and thereby improve tracking or trailing characteristics. When pushing, the skegs are aligned to reduce resistance and improve efficiency. The skegs are actuated by an electric hydraulic pump and ram. Power for the system is provided by either the cable hook-up from the tug or the 100-kw. generator on the barge.

The tug *Theresa F* and the barge *Freeport I* were designed to operate together. The company also operates a sister tug, the *Alison C* and a sister barge *Freeport 2*. These two sister tugs and barges are interchangeable. The *Alison C* commenced operations in June 1968 and had completed 15 round trips prior to the casualty. This was the second round trip for the *Theresa F*.

The Master of the *Theresa F*, Paul H. Tullis, was 29

years of age. He had been working on tugboats for 12 years including 18 months as Master. In October 1966, he was licensed to serve as Master of freight and towing vessels of not over 500 gross tons upon oceans; also first class pilot of steam and motor vessels of not over 300 gross tons upon the St. Johns River from the Main Street Bridge, Jacksonville, Fla., to the sea; and radar observer, FCP, S&M, 500 GT, Tampa & Hillsborough Bays to Tampa, Fla; FCP, S&M, any GT, Lower Mississippi River between the Huey P. Long Bridge, La. and the sea via South Pass; FCP, S&M, any GT, Lower Mississippi River between Huey P. Long Bridge, La. and Thirty-Five Mile Point Light (Mile 130.1 AHP). This was his first trip across the Gulf on the *Theresa F,* having relieved as Master in Tampa just prior to the voyage. He had, however, shifted barges with her around the Mississippi River-New Orleans area. He had never heen employed on the sister tug, *Alison C,* but had served as Master of a slightly smaller but similar tug-barge combination, the tug *Gail B* and the barge *Martha B.* The barge *Martha B* has fixed skegs which toe out going aft.

with 24,500 short tons of phosphate rock, departed

The tug *Theresa F* pushing the barge *Freeport I* laden Tampa, Fla., at about 1935 c.s.t. on 7 January 1969 and cleared the sea buoy at 0100 c.s.t. on 8 January 1969 bound for New Orleans, La. The skegs were in the "PUSH LOADED" position. Normally, one 10-kw. generator would be in operation at sea but before departure on this voyage neither of the 10-kw generators could be put on the line and the barge departed with the 100-kw. generator in operation. The Master had been advised by supervisory shore personnel that he did not have to leave the 100-kw. generator running since he could use power from the *Theresa F* if he thought he could push all the way. The Master was of the opinion that the weather would be favorable for pushing. The mean draft of the *Theresa F* upon departure, Tampa, was approximately 18 feet 6 inches, with a 3–4 foot trim by the stern in addition to the design drag. This resulted in a freeboard amidships of about 4.0 feet. Her assigned summer freeboard was 2 feet 8.5 inches.

About 0600 c.s.t. on 8 January 1969, at sea, the Master had the 100-kw. generator shut down and hooked up the tug's cable for power. About 1500 c.s.t. the bow of the tug started "banging around in the notch" and the Master ordered his crew to prepare to get out of the notch, due to increasing seas and an unfavorable weather report. The power cable from the tug to the barge was secured by the engineer of the watch and the Mate attempted to start the 100-kw. generator. He was unable to start it and summoned the Chief Engineer. The Chief Engineer boarded the barge and found the air receiver pressure gauge showing 80 p.s.i., which was below that normally required to start the 100-kw. generator (100 to 150 p.s.i. required). He tried without success to start hte 100-kw. generator with the remaining air pressure. He also tried without success to place a 10-kw. generator in operation in order to build up air pressure.

The Master decided to let go and get out of the notch. No further attempts to provide power for adjusting the skegs were made due to the increasing seas and his urgency to get out of the notch. The tug let go from the notch, proceeded forward, picking up the towing pendant by the retrieving line, shackled up for towing using 1,200 to 1,300 feet of wire towing hawser, and proceeded to the vicinity of Southwest Pass, La. During the voyage to Southwest Pass the barge was towing generally off to the port side. Upon a course change from 284° T to 270° T, a little before 1600 c.s.t. on 9 January 1969, it commenced running from side to side, 25 degrees either way. The tug and tow averaged approximately ten (10) knots during this voyage at full throttle, steering by gyro pilot.

Shortly after 1600 c.s.t. on 9 January 1969, the Mate, then on watch, notified the Master that they were approximately 16 miles from the Southwest Pass Sea Buoy. About 20 minutes later, the Master told the Mate to shorten the hawser. They proceeded on slow ahead, taking in the hawser. Five (5) miles off the sea buoy, the Master temporarily stopped shortening the hawser and increased speed to three quarters (¾). At this time there were about 500 feet of wire hawser out. The Master called the Southwest Pass Pilot Station for a pilot. He informed them that he would be at the sea buoy about 1915 c.s.t., and would attempt to make up in the notch outside the river entrance. Two and a half (2½) to three (3) miles from the sea buoy, the Master reduced speed to dead slow (2½ to 3 knots) and began shortening the towing hawser again. He informed the pilot that he was going to go inside the sea buoy to size up the sea conditions. If they were favorable, he would make up in the notch. He continued shortening the hawser until only the 350-foot nylon pendant was out. About one-half (½) mile from the sea buoy, the Master informed the pilot by radio that it was too rough to make up in the notch, and he would take her in on the hawser. The barge continued to run from side to side. The pilot informed the Master of outbound traffic and an inbound Yugoslavian ship and suggested that he wait. The Master agreed, and started a slow swing to the right. He completed a circle to the right, straightened out on a northerly heading, and then turned right to make a lee for the pilot to board. The Master and the Chief Engineer were on watch having taken over at 1800 c.s.t. The deck crew had been called out on standby for shortening the hawser and remained on standby. The navigation lights on the tug and the barge were burning properly.

The pilot left the dock at 1925 c.s.t. and boarded the *Theresa F* at 1950 c.s.t., approximately one (1) mile southeast of the sea buoy. The Master, at the wheel of the *Theresa F,* and one A.B. lookout (E. A. Nunnery) were

in the lower pilothouse. Due to an outbound tanker's intention to go eastward, the pilot suggested they continue the right turn. About 2000 c.s.t., they completed the second circle, headed toward the jetty and straightened out on a heading of 350° T. The Master increased speed to slow ahead (3 to 4 knots). The tug passed approximately one-fourth mile to the east of the sea buoy.

The barge, on the pendant as before, followed astern of the tug very well during the turns. After steadying out on a northerly heading, the barge again began running erratically from side to side. At about 2015 c.s.t., the *Theresa F* took a severe roll to starboard, throwing the pilot off his feet. The Master, bracing himself, directed a spotlight back on the barge which was then on his starboard quarter, heading slightly out, away from the tug, the bow of the barge being nearly abreast of the stern of the tug. The tug returned to an upright position without heeling to port. A few seconds later it took a second roll to starboard from which it did not recover, remaining on its side.

The Master was bracing himself on the radar adjacent to the wheel. On the second roll, as the vessel continued heeling heavily to starboard, he fell. Water was entering the pilothouse through the loosely dogged starboard door. He managed to get to the first window on the port side of the pilothouse, lowered it and climbed out. The pilot had also fallen down sliding to starboard as the vessel capsized. He followed the Master out the window. The Master and pilot went down the outboard port side of the pilothouse and encountered the Chief Engineer, who had already launched the inflatable life raft from the cabin deck. Other crew members also appeared at the scene. The Master jumped and made it to the life raft. Others jumped into the water and were pulled aboard the raft. The lookout, Nunnery, made his way to the upper pilothouse and escaped through a window.

The Chief Engineer was on watch and the only person in the engineroom at the time of the casualty. When the tug heeled over more than usual on the first heavy roll to starboard, he went to the upper level and started aft toward the engine room door on the main deck. This door, which is on centerline just forward of the towing winch, was open. He saw the wire hawser spark and slip upward into the upside down "U" frame installed over the top of the towing bitts. On the second roll to starboard, believing that the *Theresa F* was not going to right herself, he made his way over the towing engine, grabbed a work vest which was hanging there, and got up on the port side of the tug. He released the inflatable life raft and stood by until he was washed off by the seas. He saw the cook come out from his room porthole.

The Mate, in his room reading, was alarmed by the first severe roll. He started to put his shoes on, but, on the second roll, decided to leave his shoes and get out on deck. The tug was on its side as he got his room door open. He stood on the door sill from which he could reach the port outside door above him at this time. He undogged the door and pushed it open. He heard some of the crew below trying to find their way out and yelled to them that the door was open. He remained there long enough to help Ordinary Seaman W. F. Schulte and Able Seaman C. M. Futch out. The Chief Engineer shouted that he had the raft over. The Mate, who did not have a life preserver, and Schulte made their way toward the raft. Both Futch and Schulte had on life preservers.

A total of seven persons made their way to and aboard the raft. The Master got out equipment and flares and the Mate cut the painter releasing the raft from the tug. At about the same time they sighted Futch about 10 feet off in the water and could hear him shouting. He did not seem to be able to make his way to the raft. By the time the Master assembled the oars, Futch disappeared and the raft was blown away by the wind. The Master shot off a parachute flare and burned several hand flares. The Yugoslavian M/V *Zletovo* approaching the sea buoy, sighted the parachute flare, and proceeded toward the raft, locating it with her searchlight. The pilot of the *Zletovo* advised the Pilot Station of the situation by radio. The pilot boat returned from the station and towed the raft to the *Zletovo*.

The M/V *Zletovo* was boarded by Pilot Louis E. Miller at about 2020 CST, 4 to 5 miles SSE of the sea buoy. The pilot, unable to contact the *Theresa* F on VHF Channel 13, checked with the Pilot Station. They had not seen the *Theresa F*. A couple of pips could be seen on the *Zletovo's* radar, which appeared to be a little west of the sea buoy. The Master informed the pilot that he thought he saw a flare also a little west of the sea buoy. Shortly thereafter, they saw another flare and commenced working the ship in that direction. Next, they sighted a small flashing white light. Using their searchlight, they sighted an orange rubber raft. The pilot notified his station to alert the Coast Guard and Pilottown Headquarters of the situation. The *Zletovo* made a lee for the raft while the pilot boat was coming out. The pilot boat reported sighting the capsized *Theresa F*, to the pilot on the *Zletovo*. He then asked the pilot station to alert the Coast Guard that a tug had capsized and would require all possible assistance.

While waiting for the pilot boat, one of the crew of the *Zletovo* reported to the Master that he thought he heard a voice in the water to starboard. The Master had the entire ship's crew man the rails and hung cluster lights over the side. The pilot directed the pilot boat to make a search in the vicinity prior to going to the raft. After searching about a half hour without results, the pilot boat took the raft in tow to the *Zletovo*, and the survivors were taken aboard. Shortly thereafter, the CGC *Reliance* (WMEC 615) came on the scene as well as Coast Guard helicopters and aircraft. The *Zletovo* re-

The skegs on the barge Freeport I *were positioned inboard for pushing ahead when the* Theresa F *took the barge in tow astern. This action led to the barge's ultimately running wild and tripping the towing vessel.*

mained on the scene assisting in the search until released by the CGC *Reliance* at about 0200 CST. They carried the survivors to New Orleans.

The liquid conditions of the *Theresa F* upon departure, Tampa, was approximately as follows: All tanks not listed were empty:

Liquid	Frame	Sounding	Percent Full	Long tons
Diesel oil, CL	7–13		98	56. 7
Diesel oil, day tank	19–21	Full	100	10. 4
Diesel oil, P	42–50	15′1½″	90	70. 5
Diesel oil, S	42–50	15′1½″	90	81. 2
Diesel oil, CL	50–56	2′ 10″	15	4. 0
Total fuel oil				222. 8
Potable water	22–26		100	16. 2
Hydraulic and lube oil	42–44		50	5. 7
Salt water ballast, P/S	56–64	Full	100	119. 4
Salt water ballast, skeg		Full	100	10. 5
Total liquids				374. 6

Prior to the casualty, approximately 11,200 gallons (36.1 long tons) of diesel oil were used from the pair of tanks between frames 42–50 and 2,200 gallons of water (8.1 long tons) were used from the potable water tank frames 22–26. All other tanks remained the same. The diesel oil day tank was full.

Based upon the liquid loading condition at the time of capsizing, the stability condition of the *Theresa F* was approximately as follows:

a. Displacement—1005 long tons
b. Draft—17.8 feet
c. VCG (corrected for free surface)—18.3 feet above the baseline
d. GM (corrected for free surface)—2.8 feet
e. GM required—wind heel criteria—2.0 feet
f. GM required—Coast Guard horsepower criteria 1.9′
g. Dynamic Stability
  (1) Angle of Maximum Righting Arm—20 degrees
  (2) Righting Arm at 30 degree heel—0.60 feet
  (3) Areas under Righting Arm Curve—Ft—Degrees
    (a) From 0–30 degrees—15.6
    (b) From 0–40 degrees—22.2
    (c) Between 30 degrees and 40 degrees—6.5
h. Approximate Angles to Possible Down Flooding:
  (1) Main Deck Airport into Galley—36 degrees
  (2) Forecastle Deck Watertight Doors—55 degrees
  (3) Forecastle Deck Airports into Quarters—62 degrees
  (4) Air Intake to Engineroom—63 degrees
  (5) Lower Pilot House Door—74 degrees
  (6) Engineroom Door, Main Deck on Centerline—80 degrees

The *Theresa F* had life preservers on board for all hands, plus some work vests. Of the survivors, only Schulte was wearing a life preserver. Two of the deceased, Futch and Molina, had on life preservers when recovered. The Chief Engineer was wearing a work vest. The only other life-saving appliance used was the twelve (12) man inflatable life raft which was launched at the time of the capsizing.

At 1300 c.s.t. on 12 January 1969, the M/V *Pathfinder* retrieved the body of Cecil M. Futch in Block 162 South Timbalier area, about 60 miles southwest of Southwest Pass. He was wearing a life preserver stamped with

the name *Theresa F*. The M/V *Pathfinder* took the body to Gulf Oil Rig 177B in position latitude 28°30′ N., longitude 90°22′ W., where it was further transferred to the CGC *Point Lookout*. At 2100 c.s.t. on 12 January at Grand Isle, the body was released to the Jefferson Parish Coroner for transportation to Gretna, Louisiana. The body was identified as that of Cecil M. Futch. The Certificate of Death indicates the cause of death was asphyxia due to drowning. He was buried at Cross City Cemetery, Cross City, Fla., on 15 January 1969.

Subsequent to the casualty, the capsized (bottom side up) *Theresa F* was towed to shallow water, to the west and in the lee of Southwest Pass for salvage operations. It was rolled over on its side with slings, but, due to weather, was allowed to sink to the bottom in 55 feet of water in latitude 29°00′ N., and longitude 89°33′ W. The *Freeport I* was taken in tow at 0620 on 10 January 1969 and brought to New Orleans, La.

The *Theresa F* was raised from the ocean floor on 12 June 1969 by the Atlantic and Pacific Salvage Co. It was towed partially submerged, bottom side up, to Port Nickel, La., arriving there on 14 June 1969. While at Port Nickel, the *Theresa F* was righted and dewatered. On 20 June 1969 it was towed to the Bermuda Street Wharf to be cleaned out. On 25 June 1969 the *Theresa F* was brought to Eastern Associated Terminals, New Orleans, La., where it is moored pending contractual arrangements to reactivate the vessel and place it back in operation.

At about 2300 c.d.t. on 19 June 1969 the body of Joseph Homer Riffe was found in the athwartship passageway, starboard side, between his room and the Master's room. The bulkhead panels of both rooms had been carried away and the Master's safe was over Riffe's badly decomposed body. There was no evidence of his having worn a life preserver. The body was subsequently released to the Plaquemine Parish Coroner. The Certificate of Death indicates the cause of death was drowning. He was buried at Ross Cemetery, Boyd Co., Ky., on 26 June 1969.

At about 1000 c.d.t. on 22 June 1969 the body of Domingo R. Molina was found in his room, portside forward. The body was in the lower bunk clothed in a sweat shirt, sweat pants and a life preserver. The body was released to the Orleans Parish Coroner. The Certificate of Death indicates the cause of death as "marked post mortem" due to or as a consequence of "decomposition." He was buried at St. Louis Cemetery No. 3, New Orleans, La.

No distress message was transmitted by the M/V *Theresa F*. The first notification of alarm for her safety was received from the pilots of Pilottown, La., by the U.S. Coast Guard Rescue Coordination Center at New Orleans, La., at 2110 c.s.t., 9 January 1969. The CGC *Reliance* (WMEC 615) arrived on scene at 2213 c.s.t., commenced surface search and assumed on scene commander status. Search operations were completed at 1345 c.s.t. on 11 January 1969. Search and rescue statistics are as follows:

Unit	Hours underway/ flown	Sorties
SW Pass Pilot Boats	6.0	2
M/V *Zletovo*	5.5	1
CGC *Reliance*	40.0	1
HU 16E 1265	5.5	1
HU 16E 1272	6.0	1
HH 52A 1391	5.5	1
HH 52A 1372	13.7	4
Totals	85.2	11

CONCLUSIONS

The cause of the casualty was the heeling moment imposed by the towing pendant leading over the starboard quarter of the *Theresa F* while the barge *Freeport I* was on a sheer to starboard while running erratically from side to side on a shortened hawser. The primary cause of the sheering (running from side to side) of the barge was the improper positioning of the adjustable portion of the twin skegs of the *Freeport I* accentuated by the shortened hawser. The reduction in speed, the prevailing wind, and the confused seas were contributing factors since the barge had been trailing behind the tug better on other courses and speeds. These factors, however, should not have caused problems if the vessels had been operated properly. Other contributory factors were the failure of the Master to keep track of the position of the barge which was sheering from side to side; his lack of awareness of the effect of the heeling moment imposed by a tow of such great size on his quarter on a short hawser; and his failure to maneuver the *Theresa F* in such a manner as to reduce the heeling moment after the barge got on the starboard quarter. There is no evidence that the *Theresa F* suffered any impairment in stability before she was tripped by the towing line to the barge. There is no evidence that the *Theresa F* had insufficient stability for normal towing operations. There are no established criteria or stability standards for towing vessels that would prevent tripping by large tows being towed on a hawser under any and all conditions. Proper operation continues to be an important consideration in the safe navigation of towing vessels, especially those with large tows.

When the 100-kw. generator could not be started the Master should have reconnected the tug's power cable long enough to reposition the skegs for towing astern notwithstanding the fact that the bow of the tug was "banging" in the notch. The Master's decision not to reconnect the tug's power cable was a crucial error in judgment,

which is attributed to his limited operational experience in towing barges with adjustable skegs.

There was also an error in judgment on the part of the Master and his shoreside supervisor in allowing the *Freeport I* to sail with both 10-kw. generators inoperative. These generators provided power for lights, bilge pumps and the air compressor. Through lack of air the 100-kw. generator could not be started resulting in improper positioning of the skegs that led to the casualty.

There is no evidence that any law or regulation relating to vessels has been violated.

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

There were no aids to navigation or any uncharted or incorrectly charted objects or areas involved in this casualty. There was sufficient water in the vicinity of the casualty to rule out the possibility of the barge grounding.

The casualty may have been prevented:

a. If the adjustable skegs had been properly positioned for towing astern. The proper position of the skegs in this case was in turn dependent upon the proper operation of the 10-kw. generators for starting air, the proper functioning of the 100-kw. generator or the use of power from the towing vessel to operate the hydraulic rams for positioning of the skegs.

b. If the Master had been keeping track of the position of the barge in relation to the *Theresa F,* if he had realized that the tug was in a precarious position with the towing pendant leading over the starboard quarter, and if he had maneuvered the tug to reduce the heeling moment.

RECOMMENDATIONS

That a study of vessels engaged in towing operations be conducted to determine the adequacy of existing practices and requirements. In the interim the dissemination and publication of this report should alert the operators of towing vessels to the inherent dangers involved, with particular reference to, (*a*) the positioning of skegs where adjustable type skegs are employed on barges, (*b*) the condition of generators and essential machinery, and, (*c*) an alert watch to detect sheers that might result in the tripping of vessels towing large barges astern.

5 September 1969.

COMMANDANT'S ACTION

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

SYNOPSIS OF INVESTIGATIVE REPORT FINDINGS OF FACT

The M/V *Theresa F,* while approaching Southwest Pass, Mississippi River, with the barge *Freeport I* in tow, capsized in the Gulf of Mexico at approximately 2015 c.s.t., 9 January 1969. Three persons lost their lives.

While the barge which was being towed by a 350-foot nylon pendant was running erratically from side to side, the *Theresa F* took a severe roll to starboard, returned to an upright position and then took a second roll to starboard from which it did not recover. At the time of the casualty, the barge was on the tug's starboard quarter heading out and away from the tug, while the bow of the barge was nearly abreast of the stern of the tug.

The after ends of the two skegs fitted at the stern of the barge *Freeport I* are adjustable. The selective position that can be made to the skegs include "TOW LOADED," "PUSH LIGHT," and "PUSH LOADED." When towing, the skegs are positioned all the way outboard to improve trailing characteristics. When pushing, the skegs are aligned to reduce resistance. On the voyage from Tampa, Fla., the tug *Theresa F* was pushing the barge *Freeport I.* When the weather worsened the tug got out of the pushing notch of the barge, retrieved the towing pendant and made up for towing. The skegs were not altered from "PUSHING" to "TOWING" position due to a lack of electrical power. None of the generators on the barge were in operating condition. The master did not use power from the tug because of the rapid deterioration of the weather causing the tug to violently strike the barge in the notch.

REMARKS

Concurring with the Marine Board of Investigation, it is considered that the cause of this casualty was the heeling moment imposed on the *Theresa F* by the towing pendant leading over her starboard quarter after the barge *Freeport I* took a sheer due to improperly positioned skegs which allowed the barge to yaw.

A study of vessels engaged in towing operations has been initiated.

Upon approval by the National Transportation Safety Board this report will be published in the "Proceedings of the Merchant Marine Council" alerting operators of towing vessels of the lessons tn be learned from this type of casualty.

15 April 1970.

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 January 14, 1969. A member of the National Transportation Safety Board attended the proceedings as observer. We have reviewed the investigative record and considered those facts which are pertinent to the Board's statutory responsibility to make a determination of cause or probable cause and make recommendations to prevent recurrence.

SYNOPSIS

The M/V *Theresa F*, a towing vessel owned by Midland Enterprises, Inc., and operated by the Red Circle Transport Co., capsized and sank at about 2015 c.s.t. on January 9, 1969, in the vicinity of Southwest Pass Sea Buoy at latitude 28°52.9′ N. and longitude 89°25.6′ W. Of the 10 persons aboard, three crewmembers died as a result of this casualty; six crewmembers and a bar pilot survived.

The *Theresa F* was engaged in moving the barge *Freeport I*, owned and operated by the same company, from Tampa, Fla., to Uncle Sam, La. This barge and the *Theresa F* were designed and built to operate as a unit. At the time of the casualty, the barge was being towed astern by the *Theresa F*.

SUMMARY OF FACTS

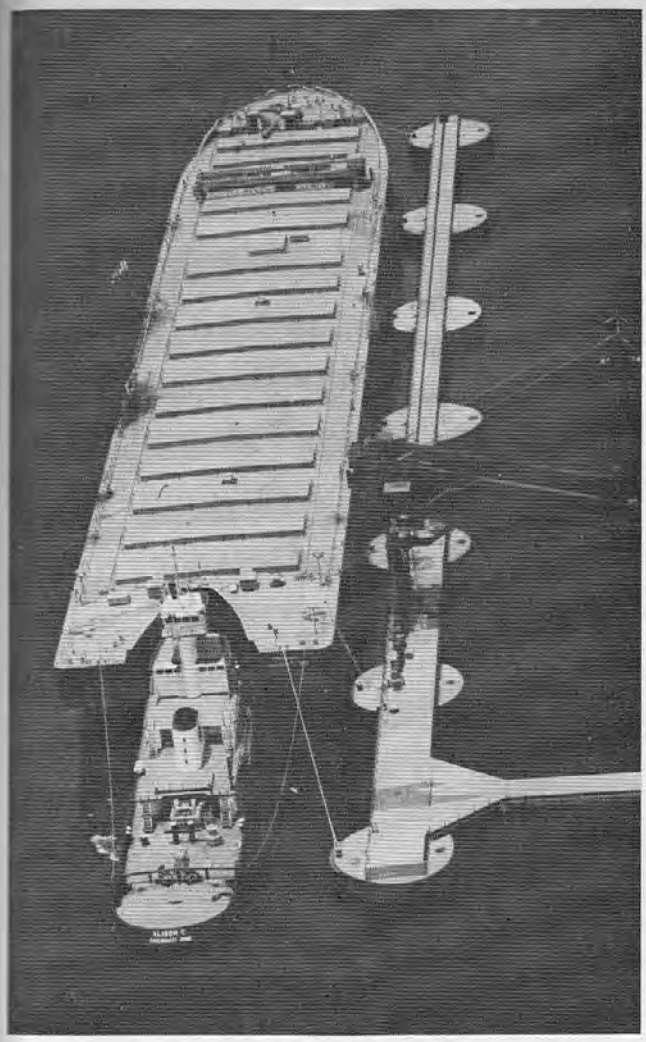
The towing vessel M/V *Theresa F* was an uninspected vessel of 196.5 gross tons and equipped with two diesel engines producing 5,000 total horsepower. She was on her second trip in the Gulf of Mexico at the time of the casualty. This vessel was built in 1968, and specifically designed to push or pull the inspected seagoing barge *Freeport I*, which displaces 26,000 tons. The barge was built with a notch in her stern and, in favorable weather, the towing vessel pushed the barge. In adverse weather, the *Freeport I* was towed astern. This barge was fitted with two movable skegs astern, which were positioned inboard for pushing, and positioned outboard for towing astern. A 100-kw. generator on the barge provided the power to position the skegs through a hydraulic ram system. Two 10-kw. generators were also installed on the *Freeport I*. The large generator required at least 100 p.s.i. of air pressure to start it. The 10-kw. generators were battery started, and were the source of power for the air compressor used to provide air to start the large generator.

Prior to sailing from Tampa on January 7, the master of the *Theresa F* reported to a supervisor of the operating company that the two small generators would not operate. He was informed that if the weather was favorable for pushing, the towing vessel could supply power to the barge using an electric connecting cable. This was the master's first trip in the Gulf, handling the *Freeport I*. He had previous offshore towing experience, but none with barges fitted with movable skegs. The master telephoned a private meteorologist in New Orleans and obtained a weather forecast which he considered suitable for pushing the barge ahead. The 100-kw. generator was in operation when the tow sailed from Tampa, but was stopped during the morning of January 8, and the electric cable was connected from the tug.

The weather deteriorated during the day of January 8, and the towing vessel started "banging around in the notch." After checking the weather forecast from Mobile, the master decided to take the barge in tow astern. Efforts to start all three generators failed. The electric power cable from the *Theresa F* had been disconnected and the skegs remained positioned for pushing. The barge was towed astern, with no trouble experienced in controlling it until the hawser was shortened and speed was reduced as the tow approached Southwest Pass. When the hawser was shortened to 350 feet, the barge ran wild, from one side to the other. The *Theresa F* circled to the right, awaiting the pilot, and the barge responded better in the turn. The wind was from the north 20 to 30 knots, and the seas from the south, resulting in confused and choppy waves of 4 to 5 feet in height. Sea conditions were too rough for the towing vessel to make up in the notch of the barge.

The pilot boarded the *Theresa F* and advised the master to delay entering Southwest Pass until other traffic cleared the channel. After the traffic cleared, the tug was steered on a course of 350° true, lining up on the entrance range lights. The barge ran erratically from side to side. At 2015, the barge exerted a severe strain on the hawser, and was on the starboard quarter of the *Theresa F*, headed about 45° to the right of the towing vessel's heading. The strain pulled the towing vessel over to starboard. She righted herself, then about 2 seconds later took another severe roll to starboard, lay over on her beam-ends, and then capsized. The power failed before the master could broadcast a distress message on voice radio.

The master, pilot, and lookout climbed out pilothouse windows, and worked their way to the port side where the chief engineer had inflated the 12-person liferaft. All but two crewmembers escaped from the sinking vessel. The cook climbed through a porthole on the port side. Seven persons boarded the inflatable raft, but one able seaman could not swim to the raft which sailed downwind out of his reach. This seaman was wearing a life preserver, but had no light. The master fired flares which were sighted by personnel on the Yugoslavian M/V *Zletovo*. The pilot signaled this vessel with a flashlight. A pilot boat from the Southwest Pass Pilot Station had been unable to raise the *Theresa F* on channel 13. The boat was directed to the location of the liferaft, and the survivors were transferred to the *Zletovo*. The pilot boat requested the pilot station to alert the Coast Guard of the capsizing.



The casualty involving the Theresa F (Alison C *shown in this photograph) and the* Freeport I *prompted the National Transportation Safety Board to call for an "operational analysis of towing vessel operations, and development of operating manuals for guidance of seagoing personnel".*

Coast Guard aircraft arrived at 2045, the CGC *Reliance* at 2213, and searched for possible other survivors. The body of the able seaman was recovered the next day about 60 miles offshore, still wearing a life preserver. The bodies of the two crewmembers trapped in the vessel were recovered several months later, after the *Theresa F* was raised for salvage.

ANALYSIS

A number of causal factors contributed to the capsizing of the *Theresa F*. The most significant factors will be considered, in the order of the occurrence of events.

The master of the *Theresa F* was making his first trip with the barge *Freeport I* in the Gulf of Mexico from Tampa, Fla., to Uncle Sam, La. He had previous experience in offshore towing, but had not handled large barges fitted with movable skegs. Other experienced personnel had advised him that these barges ran wild unless the skegs were properly set for pushing ahead or towing astern. Apparently, no instructions by supervisory officials, nor written operating instructions or manual were furnished him.

He reported to the vice president for operations of Midland Enterprises, the operators, that neither 10-kw. generator was operable. No repairs were made prior to his departure from Tampa. He was advised that as long as the weather was favorable for pushing ahead, electric power could be supplied from the *Theresa F,* via a cable, and the 100-kw. generator could be secured. This advice, in effect, negated the redundancy of the backup system of two 10-kw. generators and 100-kw. generator on the barge. The malfunctions of the two smaller generators ultimately resulted in the inability to start the 100-kw. generator and to reposition the skegs for towing astern.

The master telephoned a private meteorologist in New Orleans, and received a weather forecast which he considered favorable enough to warrant pushing the barge. The distance from the sea buoy off Tampa to Southwest Pass is 360 miles, thus at 10 knots, 36 hours are required to cross the Gulf. The fact that the master sailed indicated that he received a favorable weather forecast for 36 hours from the evening of January 7. Thus, the decision-making process was left to the judgment of the master, who was not familiar with the operation of the system.

The skegs were positioned 15 degrees inboard for pushing ahead, and the 100-kw. generator was in operation when the tow cleared the sea buoy off Tampa. The following morning, the electric power cable from the towing vessel was connected to the barge and the generator secured. Based upon this action, it would appear that the master considered the weather forecast favorable. Later, when the seas built up, and he considered it unsafe to continue to push the barge, the skegs were not repositioned outboard for towing astern, prior to disconnecting the electric power from the *Theresa F*. This action, followed by the inability to start any of the three generators, led to the barge's ultimately running wild and tripping the towing vessel.

The air pressure on the barge available to start the 100-kw. generator was about 85 p.s.i., and a pressure of 100 p.s.i. was required to start it. Since the small generators which furnished power to the air compressors were inoperative, there was no way to increase the air pressure to the required 100 p.s.i. Concern of the master for the safety of personnel on the barge influenced his decision to get the *Theresa F* out of the notch as quickly as possible, and not take time to reconnect the electric powerline and

to reposition the skegs for towing astern. His lack of understanding and experience with movable skegs, and lack of an operating manual or specific guidance, also contributed to his failure to reposition the skegs for towing astern. The master did not recognize the significance of his action. This decision was a prime causal factor leading to the casualty.

The *Freeport I* towed astern satisfactorily until the towing hawser was shortened to 350 feet as the tow approached the sea buoy off the Mississippi River Southwest Pass. A choppy sea, resulting from the 20- to 30-knot northerly wind against a southerly swell, prevented the *Theresa F* from making up in the notch of the barge. The barge followed fairly well as the tow circled to the right, awaiting the arrival of the pilot and the traffic to clear in the entrance. It was not until the *Theresa F* steadied on the range course of 350 degrees true that the barge started running from side to side. Apparently, the master did not anticipate the sudden sheer the *Freeport I* took, until it was too late to compensate for the strain. It is possible that he could have averted capsizing by turning the towing vessel to the left, putting the lead of the hawser directly astern, and slowing.

The winch was not of a constant-tension design. A constant-tension winch set to provide a margin of safety might be effective in preventing this type of tripping casualty.

Once the barge took a sheer to the right of the base course, the angle of strain on the towing hawser, combined with the increase in strain caused by the sheer, and the momentum of this large barge (26,000 displacement tons), quickly tripped the much smaller (196 gross tons) towing vessel. Corrective action might have been possible had a closer surveillance been maintained of the movements of the *Freeport I*.

Flooding followed quickly, and power was lost on the *Theresa F*. There was insufficient time to broadcast a distress message on the towing vessel's voice radio. No emergency portable radio was available.

It is possible that all hands would have perished had the towing vessel not been equipped with an inflatable liferaft. Due to the suddenness of this casualty, it would have been impossible to launch a lifeboat. This casualty illustrates the superiority of a liferaft over a lifeboat in its effectiveness as a piece of survival equipment under the conditions encountered. Current regulations do not require either a liferaft or lifeboat on board such towing vessels as the *Theresa F*. Previous casualties, such as the F/V *Fenwick Island*, which have come before this Board, focus attention on the need for liferafts on board seagoing vessels which currently are not included under the regulations.

In the dark, persons in the water would have been very difficult to locate, as the life preservers were not fitted with lights. The flares provided in the liferaft and flashlight used by the pilot resulted in the detection of the liferaft by the bridge watch on the *Zletovo*. The Safety Board has recommended that life preservers be fitted with waterproof lights in the reports of the foundering of the SS *Panoceanic Faith* and F/V *Fenwick Island*. Appropriate changes in the applicable regulations to implement this recommendation are under consideration by the Coast Guard. It was also noted that the cook on the *Theresa F* escaped from his room through a porthole. The Board has previously noted the effectiveness of portholes as an alternate means of escape in the *Gulfstag*, *African Star* and *Union Faith* reports, and recommended that the Coast Guard regulations for tank and cargo vessels provide a minimum clearance of 16 inches in diameter on manually operable air ports in berthing compartments above the main deck. This recommendation is currently under consideration by the Coast Guard.

Two crewmembers were trapped and perished. The other crewmember who died was unable to reach the liferaft which drifted downwind out of his reach. He was wearing a life preserver without a light. It is possible that he would have survived had he been able to signal the pilot boat which rescued the seven persons in the liferaft.

The stability of the *Theresa F* appeared to be adequate. However, the Safety Board is concerned that similar casualties may occur to other relatively small tugs pushing large barges at sea. The oceangoing tug-barge concept is gaining favor in this country, and some barges are as large as seagoing ships. Considerable forces will be produced by the working of the tug in a seaway, while positioned in the notch, and damage is likely to result.

This case clearly illustrates the need for operational analysis of towing vessel operations, and development of operating manuals for guidance of seagoing personnel.

PROBABLE CAUSE

The National Transportation Safety Board finds that the cause of this casualty was a combination of the angle of strain on the shortened towing hawser and the sudden increase in strain imposed on the *Theresa F* as the relatively large barge *Freeport I* took a sheer to her starboard, tripping the towing vessel, and capsizing her. This sheer resulted from a combination of wind and sea conditions, and the skegs' having been set inboard for pushing the barge. Malfunctioning of the three generators on the barge resulted in the skegs' improper positioning for towing astern. The incorrect analysis by the company official and master, of the importance of maintaining the 10-kw. generator in operating condition, as an integral part of the backup system, were causal factors. Also, the master's failure to position the skegs for towing astern prior to disconnecting the electric power from the *Theresa F* was a significant causal factor. Other factors contributing to the casualty included: the deterioration of the weather; the master's lack of offshore experience with tows fitted

with movable skegs; failure to keep the barge under constant surveillance; and lack of a constant-tension winch.

RECOMMENDATIONS

The Safety Board concurs in the recommendations of the Marine Board of Investigation which were approved by the Commandant. In addition, it is recommended that:

1. The Coast Guard, in its study of towing vessel operations, include the need for a constant-tension winch on offshore towing vessels. This is considered of particular importance on large oceangoing tug-barge units under construction or operation.

2. The Coast Guard require battery-powered, waterproof lights be provided with life preservers, which are required by present regulations.

3. The Coast Guard, in its study, consider requiring inflatable liferafts, on offshore towing vessels, of sufficient capacity to accommodate all persons on board.

4. Operators of offshore towing vessels and seagoing barges utilize operational analysis to develop operating instructions, manual, or checkoff lists which will clearly convey guidelines for safe operating methods, including the proper use of electrical, steering, and towing systems.

BY THE NATIONAL TRANSPORTATION SAFETY BOARD:

Adopted this 3d day of February, 1971:

(s) JOHN H. REED,
Chairman.

(s) OSCAR M. LAUREL,
Member.

(s) FRANCIS H. MCADAMS,
Member.

(s) LOUIS M. THAYER,
Member.

(s) ISABEL A. BURGESS,
Member.

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 4–71

April 30, 1971

Subj: Valves employing resilient material

PURPOSE

The purpose of this circular is to clarify the Coast Guard's position regarding 46 CFR 56.20–15.

BACKGROUND

Although resilient seated valves have been used for over 30 years in industry, only in the last decade has their application been expanded for shipboard use. The publication of the Navy's Military Specification MIL–V–22133 on 1 August 1960 and increased interest in the commercial shipbuilding industry led to the writing of NVC 9–61, "Valves Employing Resilient Material." The guidelines in this document were incorporated into subchapter F, Marine Engineering, when it was amended by the Federal Register of 18 December 1968. However, during the transition stage the original intent of NVC 9–61 was misconstrued and for several years a stricter posture than was intended has been assumed toward valves employing resilient material, particularly resilient seated butterfly valves.

DEFINITION

Resilient seated valves are defined as valves of the following types:

a. Valves which employ a nonmetallic diaphragm to shut off flow, with no metal-to-metal backup for valve seating.

b. Valves having nonmetallic liners inserted or bonded into the body of the valve.

c. Valves which employ a substantial amount of resilient material to accomplish seating, with no metal-to-metal backup for valve seating in the event all the resilient material were destroyed from the heat of a fire.

DISCUSSION

The present regulations, 46 CFR 56.20–15, describe two categories of valves employing resilient material, category "A" and category "B." Category "A" valves must provide effective closure of the line and prevent appreciable leakage out of the valve, either from around the stem or at the flange connections, should the resilient material be destroyed in a fire. Valves which use a flexible diaphragm of nonmetallic material to close off the line would no longer provide effective closure of the line if the diaphragm were destroyed by heat from a fire. Additionally, packless valves or valves with extensive packing around the stem could allow appreciable leakage out of the valve into the surrounding space under fire conditions. A packless diaphragm valve would embrace both areas of concern, and is suitable only for category "B" applications.

NVC 9–61 embodied the above reasoning, but did not fully explain the thinking. For example, resilient seated butterfly valves do not pose the same leakage or closure problems as do packless diaphragm valves, and most of them are suitable for category "A" applications. How-

ever, some designs exist for resilient seated butterfly valves which have unusually thick sections of rubber at either side of the resilient seat in order to have tight flange connections. Should all the resilient material be destroyed, these butterfly valves might have leakage rates which would be appreciable and would be unacceptable for certain category "A" applications.

Butterfly valves with metallic seats, such as those having an O-ring seal around the metallic disk or imbedded into the valve body, have more fire resistance than resilient seated butterfly valves. Such valves could accomplish closure with the resilient material destroyed and should not be classified or reviewed under the provisions of 46 CFR 56.20–15. Therefore, valves which are judged to fall outside of the resilient seated valve definition may be considered for service as positive shutoff valves required by 46 CFR 56.50–60(d) for systems subject to internal head pressure from tanks containing flammable, combustible or hazardous materials.

ACTION

Resilient seated butterfly valves are intended for use in category "A" applications. New designs which employ more resilient material than presently allowable by the American Water Works Association Standard C504–66 shall be evaluated by Commandant (MMT) to determine compliance with the intent of the regulations. Butterfly valves having metal-to-metal seating, with O-ring-type sealing around the disk or inserted into the body, are not to be considered as "valves employing resilient material" and may be utilized as the positive shutoff valves required by 46 CFR 56.50–60(d). Questions regarding the appropriate definition of specific valves shall be forwarded to Commandant (MMT) for action.

Effective date, 1 May 1971.

AMENDMENTS TO REGULATIONS

Title 46 Changes

Chapter I—Coast Guard, Department of Transportation

SUBCHAPTER A—GENERAL

PART 2—GENERAL DUTIES AND JURISDICTION

Waters Subject to Coast Guard Jurisdiction

The purpose of these amendments to the Coast Guard jurisdiction regulations is to include those waters of the United States which have recently been determined by the Commandant, U.S. Coast Guard, to be navigable and subject to the jurisdiction of the Coast Guard and those waters determined by the Commandant not to be under Coast Guard jurisdiction.

When a question arises as to whether certain waters are subject to Coast Guard jurisdiction in the administration and enforcement of navigation and vessel inspection laws, the matter is determined by the Commandant after investigation of the particular waterway and consultation with other interested Federal agencies. When a determination is made that the waters are or are not subject to the jurisdiction of the Coast Guard, it represents the Coast Guard's view until the status of the waters is determined conclusively through judicial or legislative proceedings.

Recently certain waters have been the object of such determinations by the Commandant. They are as follows:

The Susitna River, Alaska, is part of the navigable waters of the United States and subject to Coast Guard jurisdiction from its mouth, at Cook Inlet, to the village of Gold Creek, a distance of approximately 115 miles. This portion of the river has the capacity for launch-borne interstate and foreign commerce. Accordingly, a new § 2.22–1 is added.

Tecolotito Creek/Goleta Slough, Calif., is part of the navigable waters of the United States and subject to Coast Guard jurisdiction from the Fowler Street Bridge, Santa Barbara County, to the Pacific Ocean. This portion of the waterway is tidal having the capacity for low tide navigation by vessels subject to the laws enforced by the Coast Guard. Accordingly, a new § 2.25–25 is added.

The Androscoggin River, Maine, is part of the navigable waters of the United States and subject to Coast Guard jurisdiction from its mouth, in Merrymeeting Bay, to the dam adjacent to the Maine Street Bridge (State Route 24), in Brunswick, Maine. In this portion of the waterway there is a history of navigation, as published in the 1891 and 1882 reports of the Corps of Engineers. Accordingly, a new § 2.41–10 is added.

The Lumber River, N.C.–S.C., is part of the navigable waters of the United States and subject to Coast Guard jurisdiction from its mouth at Little Pee Dee River, S.C., to Lumberton, N.C. Between 1889 and 1897, this portion of the waterway was improved by the Corps of Engineers and, consequently, it is now, in its natural state, navigable in fact. Accordingly, § 2.55–45 is added and § 2.63–40 is revised.

The Lehigh River, Pa., is part of the navigable waters of the United States and subject to Coast Guard jurisdiction from its mouth to White Haven, Pa. This portion of the waterway has a history of interstate commercial navigation. Accordingly, § 2.60–20 is added.

The following waters are not under Coast Guard jurisdiction due to the lack of present or past history of or susceptibility of usage for interstate or foreign commerce: Lake Martin on the Tallapoosa River, Ala.; Lakes Louise, Susitna and Tyone, and the Tyone River, Alaska; Androscoggin River, from Lewiston, Maine, downstream to the dam adjacent to the Maine Street Bridge (State Route 24) in Brunswick, Maine; and the Pound River, including the John W. Flannagan Reservoir, Va. Accordingly, §§2.99–5(b), 2.99–10(a)–(d), 2.99–105(a), and 2.99–245(b) are added.

Since the amendments in this document concern interpretative rules, they are exempted from the rule making provisions of 5 U.S.C. 553 and may be made effective in less than 30 days.

The complete text of these changes was published in the "Federal Register" of June 5, 1971.

Chapter I—Coast Guard, Department of Transportation

SUBCHAPTER B—MERCHANT MARINE OFFICERS AND SEAMEN

PART 11—LICENSES IN TEMPORARY GRADES OR SPECIAL ENDORSEMENTS ON LICENSES TO PERMIT TEMPORARY SERVICE

Cancellation of Temporary Licenses or Special Endorsements

The purpose of these amendments to the merchant marine officers and seamen regulation is to terminate the special endorsements on regular licenses that allow service in the next higher grade and the special endorsements on steam engineer licenses that allow service aboard motor vessels. The amendments are based on a notice of proposed rule making (CGFR 71–21) issued on April 1, 1971 (36 F.R. 6014).

That notice described the present requirements and the reasons for the amendment. One comment was received in support of the proposal. None opposed it. The amendment is hereby adopted without change and is set forth below.

Effective date. These regulations shall become effective on July 19, 1971.

Dated: June 9, 1971.

The complete text of these changes was published in the "Federal Register" of June 17, 1971.

Chapter I—Coast Guard, Department of Transportation

SUBCHAPTER N—DANGEROUS CARGOES

PART 146—TRANSPORTATION OR STORAGE OF EXPLOSIVES OR OTHER DANGEROUS ARTICLES OR SUBSTANCES, AND COMBUSTIBLE LIQUIDS ON BOARD VESSELS

Hypochlorite Solution Containers

The purpose of this amendment is to allow carriage by water of hypochlorite solutions, not over 16 percent strength, in Department of Transportation specifications 6D (49 CFR 178.102) and 37M (49 CFR 178.134) overpacks with either DOT specifications 2S (49 CFR 178.35) or 2SL (34 CFR 178.35a) inside polyethylene liners. The amendment was proposed in a notice of proposed rule making (CGFR 71–15) issued on February 18, 1971 (36 F.R. 3128). Interested persons were invited to attend an informal hearing on March 30, 1971, and to submit written data, views, or comments on the proposal.

No oral comments were made at the public hearing. One written comment was received. This comment was also received by the Hazardous Materials Regulation Board regarding the proposed amendment for the same article in 49 CFR 173.277, which appeared in a notice of proposed rule making (Docket No. HM–78; Notice 71–5) issued on February 18, 1971 (36 F.R. 3130).

By a separate document published at page 11734 of this issue of the Federal Register, the Hazardous Materials Regulations Board, in response to the written comment, has changed the expression of the oxidizing power from 11 percent to 16 percent. For the reasons given in that document, and the necessity for standardization, the Coast Guard has also made this change.

In addition, in response to the written comment, the proposed amendment has been changed by not designating specification DOT–6D as a nonreusable container, and specification DOT–6J steel barrel or drum, which appears in the present § 146.23–100, has been corrected to a specification DOT–6D.

In consideration of the foregoing, the article "Hypochlorite solutions containing more than 7 percent available chlorine by weight" in 46 CFR 146.23–100 is amended by revising in the fourth column, the outside containers "steel barrels or drums" for sodium hypochlorite solutions not over 16 percent strength to read as follows:

§ 146.23–100 Table F—Classification: Corrosive liquids.

* * *	Required conditions for transportation	* * *	Cargo vessel.	
*	*	*	*	*
Outside containers:				
		* * *		
Authorized only for sodium hypochlorite solution not over 16% strength:				
		* * *		
Steel barrels or drums: (DOT 6D or 37M (NRC) WIC (DOT 2S, 2SL polyethylene) not over 55 gal. cap.				

(R.S. 4405, as amended, R.S. 4417a, as amended, R.S. 4462, as amended, R.S. 4472, as amended, sec. 6(b)(1), 80 Stat. 937; 46 U.S.C. 375, 391a, 416, 170, 49 U.S.C. 1655(b)(1); 49 CFR 1.46(b))

Effective date. This amendment becomes effective on September 20, 1971.

Dated: June 11, 1971.

W. M. BENKERT,
Captain, U.S. Coast Guard, Acting Chief, Office of Merchant Marine Safety.

(F.R. Doc. 71–8583; Filed 6–17–71; 8:53 a.m.)
(Federal Register of June 18, 1971.)

Q. You are underway at a speed of 15 knots and observe on the radar PPI scope a target on the starboard bow. You commence a plot and as a result of subsequence ranges and bearings you determine the relative movement is in a direction opposite to your course and the relative speed is equal to your true speed. The target is:

(a) Steering the same course and making the same speed as your vessel.

(b) Steering the reciprocal course and making the same speed as your vessel.

(c) Steering the reciprocal course to yours but making twice the speed of your vessel.

(d) Stopped dead in the water.

A. (d) Stopped dead in the water.

Q. True bearing or stabilized PPI presentation is useful when changing course because:

(a) You obtain better minimum range.

(b) An instantaneous presentation is made of new course.

(c) There is less sea return.

(d) You obtain a better and brighter picture.

A. (b) An instantaneous presentation is made of new course.

Q. Short-range resolution or pulse length will have what kind of an effect on the appearance of a target on the radar scope?

(a) The target will appear shallower in depth.

(b) The target will appear deeper in depth.

(c) The target will appear longer in azimuth.

(d) The target will appear shorter in azimuth.

A. (a) The target will appear shallower in depth.

Q. You are underway at 15 knots and observe on the radar PPI scope a target bearing dead astern at a range of 10 miles. A range and bearing observed 5 minutes later locates the target dead astern at a range of 13 miles. The target's true speed is:

(a) Equal to yours.

(b) Less than yours.

(c) Greater than yours.

(d) Solution cannot be obtained due to insufficient information.

A. (c) Greater than yours.

Q. The number of pulses transmitted per second by a radar transmitter is known as its:

(a) Pulse characteristic.

(b) Pulse transmission.

(c) Pulse repetition rate.

(d) Freqeuncy of transmission.

A. (c) Pulse repetition rate.

Q. Knowing your own course and speed, what information can be obtained by also knowing the relative movement line of a target? (Assume that courses and speeds remain constant and that the relative movement line was established by two observations with a time interval between.)

(a) The speed of the other vessel.

(b) The course of the other vessel.

(c) The closest point of approach.

(d) The line along which the target will move.

(e) All of the above.

A. (e) All of the above.

Q. When is a moving target's true course in the same direction as the relative movement?

(a) When the other vessel is astern of you and her course is the same as yours but her speed is greater.

(b) When your vessel is stopped dead in the water.

(c) When the other vessel is on a reciprocal course to yours.

(d) All of the above.

A. (d) All of the above.

Q. In a radar set the oscillator which produces the electromagnetic waves of energy is known as the:

(a) Transmitter.

(b) Modulator.

(c) Antenna.

(d) Receiver.

(e) Indicator.

A. (a) Transmitter.

Q. What range scale would you select for use of your radar in the open sea if no other vessels are close by or if expecting to make a landfall?

A. If in the open sea with no other vessels close by or if a landfall is expected, the maximum range scale (30 miles on Sperry) should be used to give as much warning as possible of the approach to other ships or land. The shorter ranges should be used occasionally to scan the close-in area in order to pick up small targets which are apt to be missed on long range.

Q. What errors are radar fixes subject to?

A. Radar fixes are subject to the following errors:

(a) The possibility that the point of land or object ranged upon is incorrectly identified.

(b) That a shoreline as seen on the PPI may not be the actual shoreline seen on the chart (as above).

(c) Errors in the gyro system, if used.

(d) Equipment error due to misalinement of the system.

Q. Is the relative bearing presentation or the true bearing presentation best for clarity on the PPI scope? Why?

A. The true bearing presentation on the PPI scope is best for clarity because it prevents blurring during a course alteration.

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, 1971 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 (7–1–70). F.R. 12–30–70.
123	Rules and Regulations for Tank Vessels (5–1–69). F.R. 10–29–69, 2–25–70, 6–17–70, 10–31–70, 12–30–70.
129	Proceedings of the Marine Safety 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, 5–11–67, 12–23–67, 6–4–68, 10–29–69, 11–29–69, 4–3–71.
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 (2–1–71).
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, 4–3–71.
190	Equipment Lists (8–1–70). F.R. 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, 12–30–70, 6–17–71.
200	Marine Investigation Regulations and Suspension and Revocation Proceedings (5–1–67). F.R. 3–30–68, 4–30–70, 10–20–70.
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, 1–20–71, 4–1–71.
249	Marine Safety 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, 10–31–70, 12–30–70.
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, 10–31–70, 12–30–70.
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, 12–30–70.
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, 12–30–70.
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, 1–20–71.
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, 10–31–70, 12–30–70.
329	Fire Fighting Manual for Tank Vessels (7–1–68).

CHANGES PUBLISHED DURING JUNE 1971

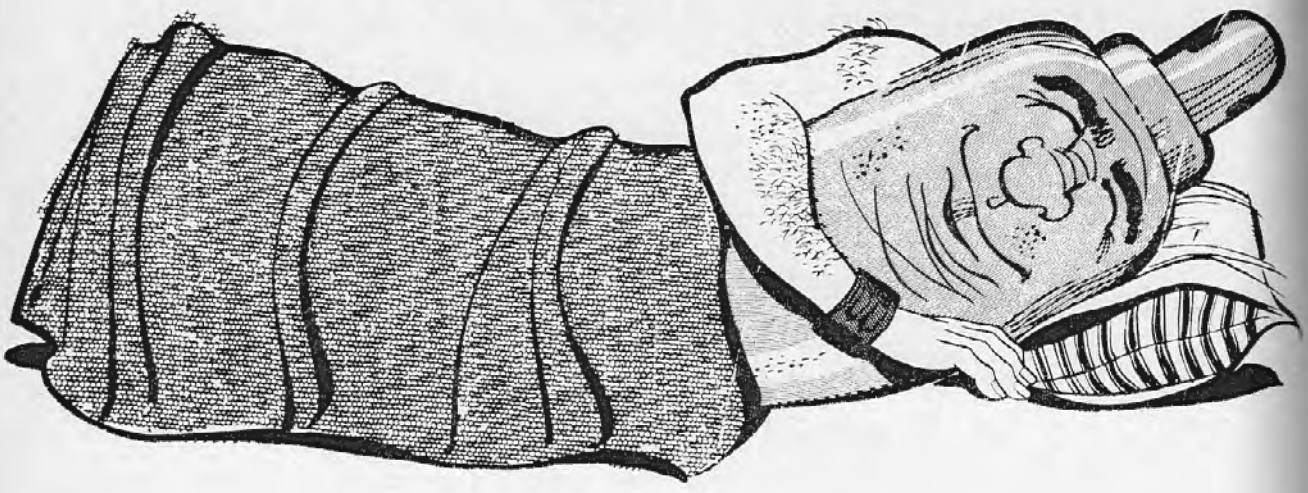
The following have been modified by Federal Registers:

Subchapter A of Title 46 CFR, Federal Register, June 5, 1971.

CG–191, Federal Register, June 17, 1971.

Subchapter N of Title 46 CFR, Federal Register June 18, 1971.

The Sleeping Giant



I am a compressed gas cylinder.
I weigh in at 175 pounds – when filled.
I am pressurized to 2200 psi.
I have wall thickness of about 1/4 inch.
I stand 57 inches high.
I am nine inches in diameter.
I wear a cap when not in use.
I wear valves, gages and hoses when at work.
I wear many colors and bands to tell what tasks I perform.
I am ruthless and deadly in the hands of the careless or uninformed.
I am too frequently left standing alone on my small base – my cap removed and lost by an unthinking workman.
I am ready to be toppled over – where my naked valve can be snapped off and all my power released through an opening no larger than the diameter of a pencil.
I have been known to jet away – faster than a dragster.
I smash my way through brick walls with the greatest of ease.
I fly through the air and reach distances of half a mile or more.
I spin, ricochet, crash and slam through anything in my path.
I scoff at the puny efforts of human flesh, bone and muscle to alter my erratic course.
I can, under certain conditions, rupture or explode; you read of these exploits in the newspapers.

You can be my master ONLY under my terms:

- Full or empty – see that my cap is on, straight and snug.
- Never leave me standing alone.
- Keep me in a secure rack or tie me so that I cannot fall.
- TREAT ME WITH RESPECT: I AM A SLEEPING GIANT.

Courtesy of: Mr. Lewis Belden
Head, Safety Division
Puget Sound Naval Shipyard
Bremerton, Washington