



COAST GUARD

PROCEEDINGS OF THE MERCHANT MARINE COUNCIL

IN THIS ISSUE . . .

A Port Safety Dilemma . . .

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Front Cover: Aerial view of New Orleans Harbor showing a heavy
concentration of Shipping. *Courtesy U.S. Army Engineer, New Orleans.*
Back Cover: "Three Points To Remember," *Courtesy Imperial Oil Fleet
News.*

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A PORT SAFETY DILEMMA

Captain William A. Jenkins, USCG

Chief, Law Enforcement Division, Headquarters

Webster defines "dilemma" as a choice or a situation involving choice between equally unsatisfactory alternatives. When applied to the problem of bringing a burning ship into a relatively secure port for the purpose of extinguishing a shipboard fire, the definition appears to be most appropriate.

THROUGH THE YEARS, man has come to respect and fear the awesome sight of a vessel afire at sea. Figure 1 shows the Panamanian freighter *Beth* on fire 90 miles SSW of Santo Domingo, as spotted by a Coast Guard aircraft.

Almost without exception, a safe haven is needed to effectively fight shipboard fires. (Remember the *Morro Castle*). There is irrefutable evidence to support the statement that shipboard inport firefighting is hazardous. At best, its undertaking poses an enormous revenue loss potential to the port in question. Private as well as municipal property is placed in jeopardy.

The dilemma faced by port safety interested personnel lies in choosing the correct course of action to follow which will afford the maximum protection to port facilities and provide optimum firefighting resources to the vessel in distress.

From an address before the 1967 Marine Section, of the National Safety Congress and Exposition.

The subject of allowing a vessel afire to enter our ports for the purpose of extinguishing a fire is outlined in this article. In order that we may examine the dilemma faced by municipalities and the Coast Guard, it is appropriate at this time to review the history of port safety legislation and related activities.

Port safety and vessel safety are intimately related. The first congressional enactment for the protection of vessels carrying dangerous cargo can be traced back to 1851. It required the shipper to notify the water carrier of the contents of dangerous cargo which were offered for shipment. Later Congress appeared to pass individual laws regulating and

prohibiting a particular commodity which was involved in some catastrophe. Each successive major disaster acted as a catalyst to the problem of regulating dangerous cargo in water transportation. The many and varied interests of Government and private groups were highlighted and some corrective action was taken as a result of each disaster. Such action was usually taken on a "piecemeal" basis, having in mind only the most recent catastrophe. There were seldom any attempts to coordinate or correlate the overall problem involved in the light of past experience. The legislation was usually "stopgap" in nature, which required modification in later years in light of more modern developments by industry. It also resulted in the particular products involved being given a "bad" name which later required considerable public education to regain acceptance for their general use.



FIGURE 1. *The Panamanian freighter Beth on fire 90 miles SSW of Santo Domingo, as spotted by a Coast Guard aircraft.*

In 1929, 18 maritime nations convened in London to provide the means of preventing disasters at sea. The result of this meeting was the Safety of Life at Sea Convention. Because of certain fears in the U.S. Senate as to several ambiguities in the 1929 Safety of Life at Sea Convention, it was not ratified until 1936. One of the provisions of this Convention was that each of the contracting governments agree to prepare detailed regulations covering the carriage of dangerous commodities. The Convention outlined the general categories which were construed to be dangerous according to the nature of their risk. Congress eventually implemented this Convention in 1940 by passing the Dangerous Cargo Act. This statute was designed to be self-policing in nature. Thus in 1940, we had two main Federal governmental bodies governing the control of trans-

portation of explosives and other dangerous articles. First, the railroad and trucking regulations for land transportation set forth by the Interstate Commerce Commission, and second, the water transportation regulations set forth by the Secretary of Commerce and enforced by the Bureau of Marine Inspection and Navigation, which Bureau was later transferred to the Coast Guard. It was apparent from the past history that neither of these agencies had any appreciable forces with which to police these regulations which were presumably written to provide safety only to the transporting vehicles, their passengers, and operators. However, these regulations left somewhat of a gap between the Interstate Commerce Commission authority and Coast Guard authority in the port area.

At the beginning of World War II, under the authority of the Espionage

Act, the Coast Guard, then a part of the Navy, was given the general responsibility for the protection of our ports. Thus, the Coast Guard did actually use its forces to supervise and enforce all port facility and vessel regulations dealing with dangerous cargo. During the war years under this strict enforcement of the Dangerous Cargo Regulations, many millions of tons of explosives and other dangerous cargo moved through our ports with only minor accidents. At the termination of the war and the cancellation of the Coast Guard's authority under the Espionage Act, the Coast Guard reverted to the prewar method of enforcing the Dangerous Cargo Act, thereby placing all major responsibility for enforcement on the shipper, owner, agent and master for compliance with the Dangerous Cargo Regulations, much as it exists today.

In 1950, President Truman, under authority contained in the Espionage Act of 1917, found that our ports were endangered by acts both premeditated and accidental. From this finding, the Coast Guard through the Captains of the Port, was given authority to, among other things, supervise and control the movement of any vessel within the territorial waters of the United States whenever it appeared that such action was necessary in order to secure such vessel from damage or injury, or to prevent damage or injury to any waterfront facility. This control is exercised by the Coast Guard to:

1. Control the entry of vessels on fire into port areas.
2. Control the movement of vessels afire within a port area.
3. Cause a vessel to move from a pier if the stricken vessel would pose a threat to the pier.

How these controls can be applied and what their limitations are, must be judged on the merits of each individual situation. There are two basic situations to which vessel control may be applied; (1) a vessel in port which catches fire or is endangered by a pier fire, and (2) a vessel afire at sea which seeks assistance from a port. Let us take a look at these situations individually. First, let us examine the case of a vessel afire made fast to a pier.

One of the most important functions of port safety is the prevention of fire in ports, waterfront facilities and on vessels. When, in spite of all precautionary measures, fires do break out, it is equally important to minimize the damage by promptly extinguishing the fire. In time of peace, this is a responsibility of the municipal authorities, the masters, owners, operators and agents of the vessel on fire. The Coast Guard can aid in a two-fold manner:

1. By controlling the movement of the vessel.
2. By making available Coast Guard owned firefighting resources to

the municipality concerned. Since the Coast Guard has no statutory responsibility for engaging in public firefighting operations, our resources are normally limited to those which are needed for self-protection. However, mutual firefighting agreements between local Coast Guard units and the municipality should list the firefighting resources which are available from the Coast Guard. To prevent damage to either the pier or the vessel, as the case might be, the Captain of the Port may control the movement of the vessel and order it away from the pier to a safe location.

Now let us examine the problems generated in bringing a vessel on fire into a port area from the sea.

Due to variables involved, controlling the movement of the vessel is by far the most difficult task facing us. Some of the variables to be considered are:

1. Location and extent of fire.
2. Types of cargo on board.
3. Possibility of explosion.
4. Possibility that the vessel might sink or capsize thereby obstructing channels or piers.
5. The severity of the fire.

Controlling the movement of vessels; i.e., allowing a vessel afire to enter port, or moving a vessel within a port to facilitate firefighting operations and afford maximum protection of the port, is also of vital interest to the municipality concerned. Whenever possible, the Coast Guard attempts to hold a joint meeting with the municipality, other interested parties, the agent, and industry specialists, prior to the vessel's entry or movement within the port area, to discuss actions to be taken. The vessel is boarded prior to its entry by competent civilian firefighting personnel and members of the Coast Guard to determine the extent of the fire, whether the vessel contains highly explosive cargo, combustible cargo, the location of the cargo in relation to the fire, the ship's ability to maneuver under its own power,

and its ability to fight its own fire. Ships generally are required to designate a local agent who will be responsible for all costs which may arise from the berthing of the ship including salvage or removal of the ship in the event that it should sink at berth. More often than not municipalities today are requiring a reasonable indemnity or guarantee to be posted by the shipowner to protect the port and its tenants from loss or damage.

The concept of a prearrival planning conference of interested parties has been used, quite effectively, by Captain of the Port, Long Beach/Los Angeles, as in the case of the Norwegian vessel *Holthill*.

SITUATION NO. 1

The *Holthill* reported on April 20, 1966, while approximately 550 miles out of Los Angeles, that she had suffered a fire which spread to her cargo of cotton and kapok in No. 4 hold. The vessel desired to enter Long Beach Harbor. In anticipation of the *Holthill's* arrival, a meeting of interested agencies and parties was held on April 21. The ship's agents, the owner's agents, the insurance underwriters, the Long Beach Harbor Department, the Long Beach Fire Department, the Captain of the Port were represented. The meeting resulted in the following plan of action:

- a. The vessel would be met at the Long Beach entrance by the Captain of the Port with other interested agencies and parties. A survey of the fire situation on the vessel would be made at the time of boarding.

- b. The vessel would be allowed to proceed to a berth in Long Beach Harbor, if, in the judgement of the Captain of the Port and Long Beach Fire Department, such action was indicated.

- c. The vessel's plant would be maintained in operation to facilitate firefighting and ship operations.



Courtesy City of Long Beach

FIGURE 2. Some of the cargo on the *Holthill* that was still smoldering, is being wet down with a firehose.

d. Upon arrival at the berth assigned, the ship would be required to moor bow to sea, and have a wire tow line rigged to expedite removal of the ship from the berth, should it become necessary.

e. A suitable tug would be required to stand by the ship until the Captain of the Port, with the concurrence of the Long Beach Fire Department, should deem the services of the tug unnecessary. If released, a tug would be required to be on immediate recall from its own moorings until the fire was extinguished.

f. The *Holthill* would provide adequate personnel to get underway immediately, should an emergency arise.

g. The agents would provide an adequate fire watch on the dock until the Captain of the Port, with the concurrence of the Long Beach Fire Department, should deem such a watch was no longer necessary.

h. Finally, it was pointed out to the ship's agents that the Captain of the Port, pursuant to the authority vested in him by 33 CFR 6.04-8, could order the ship to anchorage at any time the security of the port was endangered.

The *Holthill* arrived at Long Beach entrance April 22, 1966. The preliminary survey conducted at the sea buoy indicated that allowing the ship to enter would not constitute a danger to the port. The vessel was directed to proceed to Berth 22 in Long Beach and moored as planned. CO₂ was discharged periodically into the hold during the 23d and 24th. On April 25 the burnt cargo was off-loaded. Some of the cargo that was still smoldering, was wet down with a firehose. (See figure 2.) Breathing apparatus was used in the hold following the use of CO₂. (See figure 3.)

Aside from technical firefighting knowledge, the municipality must

decide if forces are sufficient to cope with the disaster, whether the fire can be extinguished without jeopardizing the port, and how the municipality may benefit from such an operation. A certain amount of loyalty exists between a municipality and the vessels of the world with which it normally trades. A problem arises when foreign vessels which do not normally trade at a port require port entrance and assistance for the purpose of having a fire extinguished. In some instances the municipalities have stated outright, "no." In other instances municipalities have given the concurrence provided that the vessel would place a security bond with the facility owner. In still other instances, permission was granted with no contingencies. Concurrence of municipalities is necessary before a vessel will be brought to a dock for firefighting operations.

The question has arisen, does the Captain of the Port have authority to order the owner of a pier facility to accommodate a vessel with smoldering fires, if the refusal of the owner of the facility is considered to be unreasonable. Commenting on this situation, the Chief Counsel of the Coast Guard replied:

I do not find any provision in the regulations whereby Captain of the Port is authorized to compel the owner of a waterfront facility to assume a hazard by accommodating the mooring of a vessel whose cargo is on fire, even though there may be a difference of opinion between the owner and the Captain of the Port with respect to the danger, if any, that may be involved. As proprietor, the owner has primary responsibility for the protection of his facility, and the regulations specifically provide that nothing contained therein shall be construed as relieving the owner from such responsibility.

In some instances, municipalities have stated that they will allow a vessel afire to enter port if the Coast Guard so orders it; and on occasion, the Coast Guard has done so. However, when municipalities object to

the entry of a vessel into their port area, the vessel may be brought into a secure anchorage and the fire fought with maritime firefighting appliances; i.e., fireboats and public vessels.

Such is the case of the Norwegian vessel *Noordwijk* in Charleston, S.C., in April of 1966.

SITUATION NO. 2

On 29 March 1966, the U.S. Coast Guard requested the South Carolina State Ports Authority in Charleston, to berth a bulk grain carrier afire, in order that municipal shoreside firefighting equipment could be utilized and the damaged cargo off-loaded. The vessel was en route from South Pass, Louisiana to Gibraltar, carrying corn. The hatches had not been opened for fear that fresh air would cause flames to erupt. The ship's carbon dioxide fire extinguishing system was used but failed to halt the fire. The Port Authority declined to berth the vessel and she was anchored in the anchorage area in Rebellion Roads. The Port Authority then offered to berth the vessel providing the owners would indemnify the Port for the value of the pier, cargo and possible claims in the event that the fire spread to the terminal. The owners of the vessel declined to post sufficient bond to satisfy the Port Authority. Unloading facilities were not available at Charleston, S.C., and on March 31, 1966, the vessel sailed for Norfolk, arriving early the morning of April 2. She was berthed at Lamberts Point Docks, Inc., where the grain was to be off-loaded by crane operated grab. Only very light smoke and strong odor were observed on arrival. Upper No. 4 hatch was opened first, and evidence of minor smoke and steam was immediately evident at the after portion of the square of the hatch. As grain was off-loaded, charred and actively smoldering grain was uncovered. A minor flareup with open flame was observed

when the smoldering, fused grain was exposed to the air, but was immediately extinguished by application of water fog. (See figure 4.) The fire in upper No. 4 was caused by heat transfer through the bulkhead from lower No. 5. In all, 36,000 pounds of carbon dioxide were required to extinguish the fire. Subsequent examination revealed that corn had been burned in three holds; one apparently by the transmission of heat through a bulkhead.

The problem remains, however, as to what degree the port should be placed in danger for the sole purpose of maritime firefighting. The Coast Guard is placed "in the middle" in cases of this nature inasmuch as our

basic statutory authority dictates that we take whatever action is necessary to render aid to distressed vessels. Title 14 U.S.C. 88 entitled "Coast Guard" reads, in part, as follows:

(a) In order to render aid to distressed persons, vessels, and aircraft on the high seas and on waters over which the United States has jurisdiction and in order to render aid to persons and property imperiled by flood, the Coast Guard may:

(1) Perform any and all acts necessary to rescue and aid persons and protect and save property;

(2) Take charge of and protect all property saved from marine or aircraft disasters, or floods, at which the Coast Guard is present, until such property is



Courtesy City of Long Beach

FIGURE 3. The use of breathing apparatus in a hold when CO_2 was used, eliminates the requirements for ventilating the hold prior to off-loading operations, thus retarding the possibility of reflash due to lack of combustible atmosphere.



FIGURE 4. Source of fire may have been a result of hold flood lights being left on after the cargo of corn was loaded. Note charred grain in recess of flood light.

claimed by persons legally authorized to receive it or until otherwise disposed of in accordance with law or applicable regulations, and care for bodies of those who may have perished in such catastrophes;

(b) The Coast Guard may render aid to persons and protect and save property at any time and at any place at which Coast Guard facilities and personnel are available and can be effectively utilized * * *.

Furthermore, under Executive Order 10173, the Coast Guard is responsible to the President of the

United States for maintaining safe operable ports. Although at first blush these two responsibilities appear to conflict with one another when the marine firefighting problem is approached, we have had success with a minimum amount of objection from municipalities by allowing the municipality to make the initial decision and the Coast Guard to offer guidance and expertise wherever possible. Although municipalities may prevent vessels afire from tying to the piers, docks and wharves, the Captain of the Port, U.S. Coast

Guard, has the authority to allow vessels to enter a port at anchorages where fires can be most readily combatted.

The following cases are excellent illustrations of mutual Coast Guard and municipality action in successful firefighting operations.

The first is in the case of the vessel *Loide America* which took place in Miami on February 24, 1965.

SITUATION NO. 3

While en route from Trinidad to Port Everglades, the SS *Loide America*, a Brazilian Flag vessel with a cargo of sisal was reported to be on fire in the Atlantic off Miami.

The Coast Guard made plans to board the vessel that night with representatives of the City of Miami's Fire Division to determine the extent of the fire, the vessel's firefighting capabilities, and if conditions would permit the vessel's safe entry in the Port of Miami so that land based firefighting equipment could be used to extinguish the fire. Upon boarding and examination, it was determined that entry and attendant firefighting operations were both feasible and desired.

When entry into the port was deemed reasonably safe, Berth No. 52, located at the northeast corner of the new Port of Miami was provided by the City of Miami. The vessel arrived on February 25 at 0850 hours and several units of the city's firefighting equipment were standing by for ready action.

Based on the Fire Division's records, 3 hours were required to control the blaze in the ship and 3 days to completely extinguish the burning cargo after removal from the vessel to the apron. A total of 5,000 gallons of wet water solution, 395 man-hours and 10 pieces of equipment were used intermittently to extinguish the fire.

It is reported that 50 tons of sisal were destroyed and 80 tons were sal-

vaged and reloaded on the vessel for resumption of her voyage to Port Everglades. The SS *Loide America* departed Miami on March 15 at 1550 hours.

Another illustration in the same area is that of the West German vessel *Schauenburg* which took place in Tampa at the same time the *Loide America* incident occurred.

SITUATION NO. 4

On 23 February 1965 the Captain of the Port, Tampa, Fla., was informed that the MV *Schauenburg* was at anchor at the sea buoy off Tampa Bay with a fire in a stowage of 500 bales of cotton in number two lower hold. Other dangerous cargo reported on board were 300 tons of bagged calcium nitrate in number one 'tween deck and lower hold, 1,500 tons of bulk sulphur in number four lower hold, and 290 tons of bagged calcium nitrate in number five lower hold. A dust tight, 3-inch wood bulkhead separated No. 2 and No. 3 lower holds.

A Captain of the Port representative was placed aboard the vessel to evaluate the situation. The CGC *Cosmos* was assigned to the case. Some difficulty was experienced in determining the stowage of the dangerous cargo aboard; no dangerous cargo manifest was available and the cargo stowage plan was inaccurate. Finally, the Inward Customs Manifest revealed the needed information.

At first, efforts were made to extinguish the fire with CO₂. The use of water was delayed by the master in an effort to protect other cargo from damage.

On February 24, the vessel was brought into an explosives anchorage. More CO₂ was applied, including approximately 2,700 pounds of dry ice. The smoldering fire continued. The next day, February 25, high expansion foam was applied without any apparent effect. Meanwhile, weather conditions worsened with rising

winds. There was serious concern that the smoldering fire would not remain under control. The master continued to be reluctant about using water.

At 0200R on February 26 conditions worsened sharply as open fire broke out on the canvas hatch cover to No. 2 hold. The master requested Coast Guard assistance and a fire party from the Cutter *Cosmos* started using water on the open flame. At this point, the idea of saving the other



Captain Jenkins is a 1941 graduate of the U.S. Coast Guard Academy. He earned his wings as a Coast Guard Aviator in 1944. His career has included duties as Aide to the Commandant, Assistant Commandant of Academy Cadets, and Commanding Officer of Coast Guard Air Detachment, San Juan. Captain Jenkins was graduated from the National War College just prior to assuming his present position as Chief Law Enforcement Division at Coast Guard Headquarters, Washington, D.C.

cargo was abandoned and the main consideration became the saving of the vessel.

After the fire was brought under control, the Coast Guard representative on board indicated that the vessel could be brought safely to the pier; however, the City Fire Department advised that the vessel would not be allowed to enter the city limits under any conditions short of having the

fire completely out. The City Fire Department agreed however, to provide firefighting equipment to Port Sutton Seawall Dock, just outside of the Tampa city limits. The Captain of the Port then assumed control of the vessel and ordered her to be moored at the Port Sutton Dock, where shoreside firefighting appliances could be brought into play. Once docked, the fire was successfully extinguished by the municipality with water. By 0130R on February 27, all smoldering or burnt cotton had been discharged.

To give an idea of the size of the firefighting operation, the following information is given on the quantity of firefighting agents that were used:

- 7085 pounds CO₂ from the ship's system.
- 4400 pounds CO₂ from City Fire Equipment Co.
- 2700 pounds of dry ice from City Fire Equipment Co.
- 65 gallons of Kidde concentrated detergent foam from City Fire Equipment Co. (0.7 gallon makes 5,000 cubic feet of foam).
- 1,320,000 gallons of water from Tampa Fire Department.
- An undetermined amount of water from the Cutter *Cosmos* pumping on three 1½-inch hoses for approximately 12 hours.
- An undetermined amount of water from the Cutter pumping on two 1½-inch hoses intermittently for 12 hours.

Another such illustration of a persistent shipboard fire at sea which involved a transiting vessel was that of the SS *Export Champion* in Honolulu in July of 1966.

SITUATION NO. 5

On 13 July 1966, while en route from Yokohama to San Francisco, the SS *Export Champion* suffered a fire in No. 2 cargo hold. The vessel stopped at Midway Island to replenish CO₂ supplies which had been used to extinguish the fire.

On the morning of July 19 the Captain of the Port, Honolulu was notified that the vessel had experienced re-ignition of the fire in No. 2 hold. Although in no immediate danger, the ship was diverting to Honolulu for assistance and requested entry clearance through her local agents. The estimated time of arrival was on the evening of the 14th.

The Captain of the Port presided at a meeting of interested parties, vessel agents, and local port authorities during the afternoon of the 19th. All known information regarding the vessel and its cargo, the possible berth sites, and firefighting procedures were discussed and tentative arrangements made.

At 2215 local time on the 19th, the *Export Champion* was boarded 3 miles south of Honolulu entrance by the Captain of the Port, Officer in Charge, Marine Inspection, Honolulu Fire Chief, the State Harbor-master, and other interested parties. Following discussion with the ship's officers, a survey of accessible portions of the vessel surrounding No. 2 hold was made. The smoldering fire in the hold appeared well controlled with no immediate danger to the ship evident. Afterward, a meeting was held with the ship's officers. Certain agreements were reached, the more important of these being:

- that the Captain of the Port would act as overall coordinator for the safety of the vessel and harbor if entry were granted; and
- that the Chief of the Honolulu Fire Department would be in charge of extinguishing any remaining fire.

The vessel was cleared by Captain of the Port for conditional entry at 2355, and entered under escort of a city fireboat. A CG 95-footer stood by inside the harbor and the Captain of the Port office was fully manned during entry. The ship was moored

and a Captain of the Port patrol watch was established. By previous arrangement, Pacific Marine and Supply Co. began hooking up a 12,000-pound-capacity CO₂ truck to the vessel's main CO₂ distribution manifold. At 0215 on the 20th, carbon dioxide was being injected into the hold.

For 2 days, CO₂ was injected at a 500-pounds-per-hour rate, with periodic checks on the atmosphere in the hold. The fireboat remained alongside and the Coast Guard patrol was continued. Plans and procedures for opening of the No. 2 hatch were outlined by the fire chief and the Captain of the Port, and included whistle signals for clearing the hold of personnel in the event of an emergency.

With extra firefighting equipment present, the hatch was opened at 0830 local time on the 22d. There being no evidence of existing fire in the upper 'tween deck level, cargo unloading commenced following ventilation and oxygen testing procedures. The fire had been concentrated in boxes of wooden lacquered toys, chinaware, and other commodities packed in excelsior. They were tightly stowed against the overhead in the upper 'tween deck level, under the longitudinal hatch beam, port side. When it was accessible, the lower 'tween deck level hatch was opened. First indications were that the fire had not involved the lower 'tween deck level as had been previously reported. However, investigation revealed that the fire had also concentrated in basically the same location of the lower 'tween deck. Cargo involved on this level was sea grass, tube mats and baled kapok, and was also tightly stowed against the overhead of the port wing. All burned and badly damaged cargo had been removed by 2300. Investigation revealed no evidence of damage at all in this level. There being no indication of further need, the emergency precautions were rescinded by the Captain of the Port at 2230. The fire-

boat and the Captain of the Port patrol remained on the scene until daylight, when the removed cargo was again loaded. *Export Champion* sailed for San Francisco on July 24 after recharging the installed CO₂ systems and undergoing seaworthiness inspection by the American Bureau of Shipping and the local officer in Charge, Marine Inspection.

In conclusion, let me sound a cooperative note for standardizing procedures for accepting the responsibility of extinguishing a fire aboard a stricken vessel entering from the sea. In essence, each case must be considered individually as to the threat it poses to the port opposed to safety of the vessel and the lives of its crew. In nearly all cases three groups will be concerned, the Coast Guard Captain of the Port, local port administrators and the local fire department. Concurrence of these representatives should be obtained. The vessel should be boarded prior to her entry by firefighting and Coast Guard representatives to ascertain the particulars of the vessel and of her cargo with relation to the fire. The ship should designate a local agent who will be responsible for costs which may arise from the incident. A reasonable indemnity or guarantee may be required, within limitation of liability in Admiralty. Such limitation is based on the value of the vessel after the casualty. A coordinated plan of action based on information derived, will assist in bringing the firefighting operation to a successful conclusion in the most expeditious manner. The solution to the dilemma of a burning ship lies in continued coordination and cooperation among the Coast Guard Captain of the Port and the public officials of the municipality concerned. Through mutual effort, satisfactory plans and procedures can be derived to solve our dilemma by providing humanitarian firefighting service to a burning vessel and at the same time assuring the safety and welfare of the port. ‡

A ROUGH START

It was a frigid day on the Mississippi River, and a tank barge had to be discharged. The regular tanker-man couldn't get the diesel pump engine to run, so he did the next best thing. He called for the experts—the fellows from out of town.

As are many diesel engines on tank barges, this one was equipped with a hydraulic starter system. The system is simple and functional. A hydraulic accumulator is charged to about 2,700 p.s.i. pressure with a line to a hydraulic motor which drives the starter. The accumulator may be pressurized by means of a hand pump, but this is time-consuming. Normally, pressure is maintained by a compressor driven by the engine.

On this cold morning, the engine just wouldn't fire. After a few attempts, the accumulator pressure was too low to turn the engine.

The solution was simple. Simply feed another pressure source to the starter system bypassing the accumulator. The energetic experts saw this solution immediately!

Disconnecting the pressure line from the accumulator to the starter was simple. Next they attached a line from an OXYGEN cylinder to the hydraulic starter motor, which contained some amount of hydraulic oil. So far, so good.

The explosion which occurred when the starting valve was actuated was heard for some distance.

Pure oxygen introduced to the starter motor which contained a flammable liquid needed only a source of ignition. Heat from friction in the motor undoubtedly did the trick.

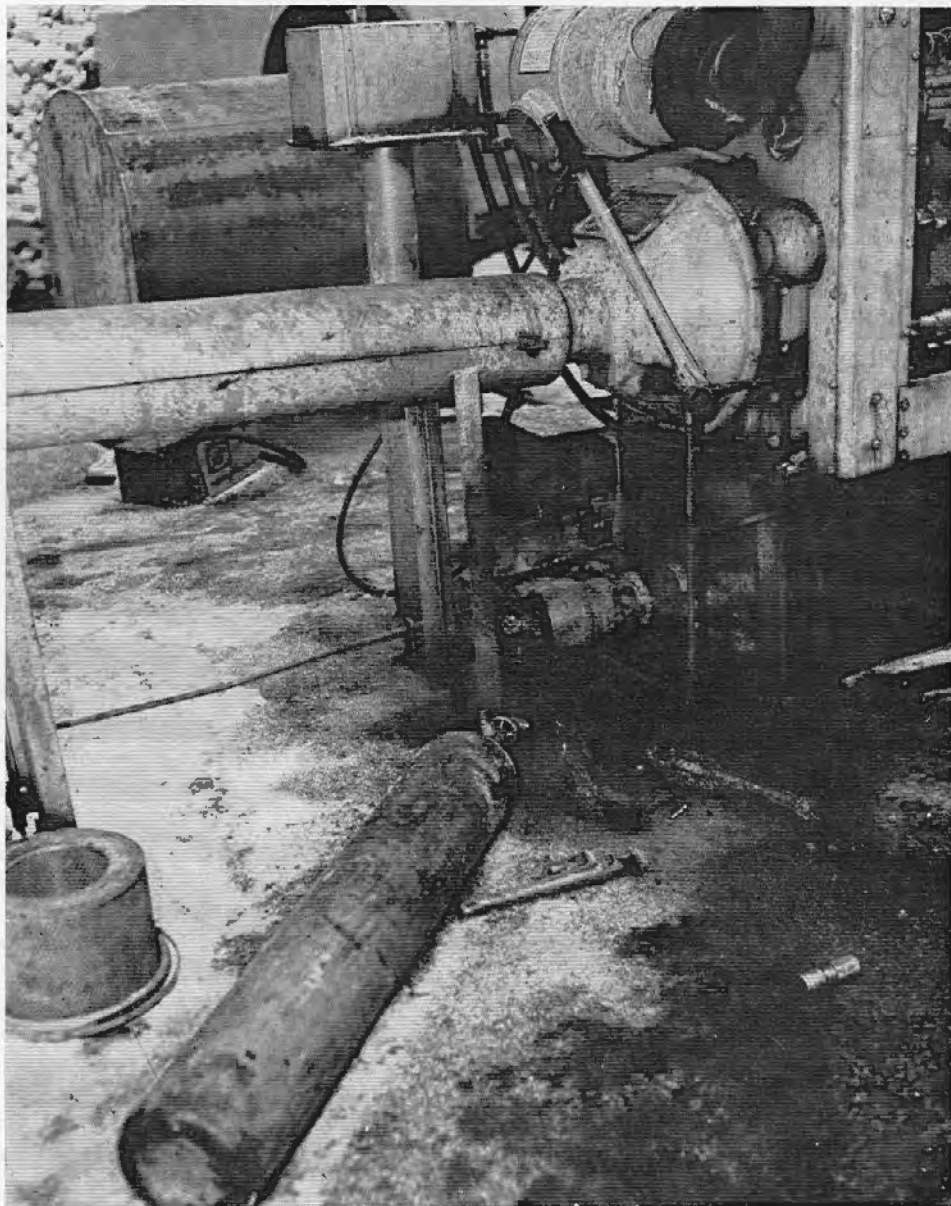
Result: One severely damaged diesel engine and two very seriously injured mechanics.

Comment: Too often, oxygen is considered the same as air. Too few are aware of the potential hazard as-

sociated with a rich concentration of oxygen.

Moral: Know the difference between air and oxygen. Keep rich

oxygen mixture away from flammables, and if you just don't understand something of potential danger, send for a REAL EXPERT. ‡



DISTINGUISHED SERVICE RESCUE AWARD



Courtesy Military Sea Transportation Service

The USNS General Nelson M. Walker and its crew were honored during ceremonies at the Military Sea Transportation Service, Atlantic Area Headquarters, in Brooklyn, N.Y., for the rescue of the crew from a sinking Liberian freighter. The USNS Walker was the recipient of the Distinguished Service Rescue Award sponsored by the American Merchant Marine Institute, Inc., and the Marine Section, National Safety Council. The award recognizes outstanding feats of safety at sea.

Pictured left to right are: Warren Lindsey, of United States Lines representing F. C. Grant, Past Chairman of the Marine Section, National Safety Council; C. Bradford Mitchell, Secretary, Marine Section, National Safety Council; Capt. Knud T. Mortensen, Master of the USNS Walker at the time of the rescue; and Rear Admiral Reuben Whitaker, Commander, Atlantic Area, Military Sea Transportation Service.

⚓

New Welland Channel

A \$110 million excavation project began recently on the Welland sec-

tion of the St. Lawrence Seaway. A new 8-mile channel will be 350 feet wide at the bottom. This replaces a narrow and winding part of the waterway with a bottom width of 192 feet that now bisects a city of 38,000. The Welland has a lift of 326 feet and a length of 26 miles.

The section being replaced is complicated by several curves and six movable bridges. Much of the excavated material will be built into embankments for windbreaks alongside the new channel. The new straight alignment of the project will contribute to easier passage for ships navigating between Lake Ontario and Lake Erie.

⚓

Sanitation Award

For the 11th successive year, the United States Lines has won the Public Health Service Special Citation for the excellent sanitation of the superliner United States and the company's cargoliner fleet during 1966.

The award certifies that the company's fleet of 45 cargo vessels received a sanitation rating of 95 or better in official Public Health inspections involving 166 separate items of sanitary construction, maintenance and operation.

⚓

Automated Merchant Vessel Report

The U.S. Coast Guard's Automated Merchant Vessel Report (AMVER) system has recorded another outstanding year of operations according to statistics recently compiled at the system's ship plotting center in New York City.

AMVER is a worldwide maritime mutual assistance program which provides aid to search and rescue efforts in distant offshore areas of the world's oceans. This is accomplished by plotting the voyages of merchant ships which voluntarily send their sailing plans to the AMVER center. There the information on ships' positions is kept continuously up to date by an electronic computer system.

nautical queries

DECK

In 1967, 5,653 separate vessels voluntarily participated in the program. This resulted in nearly 109,000 passages being plotted with a monthly average of 5,812 passages in the Atlantic and 3,240 in the Pacific. The daily average of vessels on plot in the Atlantic was 927, while in the Pacific it was 749.

To help resolve emergency search and rescue operations, the AMVER center provided 1,866 Surface Pictures (SURPICS) to international search and rescue agencies. A SURPIC is a list of ships known to be within the area of a distress, and containing the ship's position, course, speed, destination, communications and medical capabilities.

AMVER's worldwide communication system expanded in scope with the addition of three Spanish maritime radio stations early in the year. The Spanish stations were the first on the European Continent to enter the system and greatly improved AMVER's Atlantic ship-shore communications. In October, Australia joined the system in the Pacific with one of its stations, SYDNEY RADIO.

International cooperation and support of AMVER continued during the year, with 1,076 ships recorded as participants in the program for the first time. More than 1,000 visitors from the maritime nations of the world, ranging from apprentice seaman to ship's captain to company president were logged in at the AMVER center during the year, and each with the same basic interest, safety at sea.

Details of AMVER system operations may be obtained from Commander, Eastern Area, U.S. Coast Guard, Governors Island, N.Y. 10004, and Commander, Western Area, U.S. Coast Guard, 630 Sansome Street, San Francisco, Calif. 94126. ⚓

Q. In observing a meridian altitude of the sun when the ship's speed has a considerable component to the northward or southward, what must be guarded against? Why?

A. The watch time of the sun's transit will be the best guide as to the time for observing the meridian altitude of the sun, especially when the ship's speed has a considerable component to the northward or southward. The "dip" method cannot be used accurately in this case, since the sun's motion due to the change of the observer's latitude may be very material and thus have considerable influence on the time of the sun's dipping.

Q. State how you would maneuver your vessel to pick up a lifeboat in a heavy sea.

A. Steam to windward of the lifeboat and distribute storm oil. Heave to with the sea on the bow or quarter to form a lee and lessen rolling, moving very slowly through the water. Boatfalls should be ready to be hooked on and well manned for fast hoisting and seapainter, stern fast, heaving lines, frapping lines, and fenders should be ready.

The lifeboat should come off the ship's side abreast of the davits and receive the seapainter, using the steering oar to bring the lifeboat alongside and fending off with the boathooks. The forward boatfall should be hooked on first and then the after fall and the boat hoisted away as quickly as possible with the men in the boat taking their weight on the lifelines as the boat is hoisted. The stern fast and frapping lines can be used to keep the lifeboat from swinging and pitching while being hoisted. Pull drain plug when well clear of the water.

ENGINE

Q. Explain what you would do to minimize damage in the event of a soot fire in the economizer.

A. As soon as the fire in the economizer is detected the oil burners should be secured and the air registers closed. The boiler feedwater flow through the economizer should be increased as much as possible and the water in the steam drum kept in sight by the use of the surface or bottom blow valves. The fire should be extinguished as soon as possible either through the use of steam soot blowers or other suitable fire extinguisher. The economizer should be examined for damage and cleanliness, and hydrostatically tested prior to being put back in service.

Q. What is the purpose of the equalizing line on a dummy piston? Where does it lead?

A. The main purpose of the equalizing line is to assist the dummy piston in counterbalancing the axial thrust by maintaining the same pressure on the forward side of the dummy piston as is on the exhaust side of the turbine. The equalizing line usually leads direct to the exhaust trunk.

Q. One of the following is *not* true concerning operation of a fixed CO₂ system:

- (a) All cylinders must be weighed annually
- (b) You may release all cylinders simultaneously
- (c) CO₂ discharges at a level above the boilers
- (d) Engine room spaces require a CO₂ alarm

A. (c) CO₂ discharges at a level above the boilers

AMENDMENTS TO REGULATIONS

Title 46 Changes

FIRE PROTECTION FOR TANK AND CARGO VESSELS

SUBCHAPTER D—TANK VESSELS SUBCHAPTER I—CARGO AND MISCELLANEOUS VESSELS

Pursuant to the notice of proposed rule making published in the Federal Register of January 24, 1967 (32 F.R. 795-807), and the Merchant Marine Council Public Hearing Agenda dated March 20, 1967 (CG-249), the Merchant Marine Council held a public hearing on March 20, 1967, for the purpose of receiving comments, views, and data. The proposals considered were identified as Items PH 1-67 to PH 13-67, inclusive. Item PH 6-67 (CG-249, pages 117 to 125, inclusive) contained proposals regarding fire protection for tank and cargo vessels. These proposals are adopted and set forth in this document.

Interested persons have been afforded an opportunity to participate in the consideration of these proposals. The Merchant Marine Council's actions with respect to comments received and proposals in Item PH 6-67 are approved.

As stated in 46 CFR 30.01-15 and various sections in Part 92 the amendments in this document are not retroactive in effect. Existing structure arrangements and materials previously approved will be considered satisfactory so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. The requirements in these amendments apply to new vessels contracted for on or after the effective date of these changes and to new installations or major alterations

on existing vessels made on or after the effective date of these changes. As described in the regulations, the firefighting equipment amendments to 46 CFR Parts 34, 95, and 97 apply to both new and existing vessels. The amendments to the rules and regulations in this document shall be effective on and after July 1, 1968; however, the regulations in this document may be complied with in lieu of existing requirements prior to that date.

The complete text of these changes has been published in the Federal Register of January 26, 1968.

INSPECTION AND CERTIFICATION

SUBCHAPTER U—OCEANOGRAPHIC VESSELS

This amendment to the shipping regulations in 46 CFR Chapter I adds a new Subchapter U (Oceanographic Vessels), consisting of Parts 188 to 198, inclusive. It implements the provisions of the act of July 30, 1965 (Public Law 89-99, 79 Stat. 424, 46 U.S.C. 441-445), with respect to inspection and certification of those vessels which the Coast Guard finds are " * * * being employed exclusively in instruction in oceanography or limnology, or both, or exclusively in oceanographic research * * *" as defined in section 441 of 46 U.S. Code. Additionally, the descriptions of applicability of vessel inspection and certification regulations to various categories of vessels in other subchapters are amended to show the establishment of a new category of vessels designated "oceanographic vessels."

The notice of proposed rule making regarding inspection and certification of oceanographic vessels, together with the proposed rules and regulations, was published in Part II of the FEDERAL REGISTER of October 1, 1966

(31 F.R. 12860-12912). Pursuant thereto the Merchant Marine Council held a public hearing on November 21, 1966, in Washington, D.C. Over 368 written comments were received. Approximately 36 persons, representing associations, unions, public and private research organizations, universities, and corporations were present and nine persons submitted oral comments. The general areas to which the comments were directed may be described as follows:

(a) Permission to use unusual or non-standard vessel design.

(b) Permission to allow crew members of various departments to be quartered together.

(c) Permission to use special types of railings.

(d) Allowance for bulkhead penetrations for ventilation ducts.

(e) Permission to substitute inflatable liferafts for lifeboats.

(f) Permission to use special davits for rescue boats.

(g) Permission to allow on-deck stowage of explosives.

(h) Allowance of portable laboratories on deck.

(i) Identification of oceanographic vessels under the Federal Boating Act of 1958 as numbered vessels.

(j) The ventilation, fire protection, structure and location requirements for chemical and scientific laboratories.

(k) Requirements for weight handling gear and their application to scientific type equipment.

(l) Application of regulations to barges over 100 gross tons and less than 300 gross tons.

Following the Public Hearing the Coast Guard met with various interested groups and held informal discussions regarding revisions of the proposed regulations. The Research Vessel Operators' Council submitted

for consideration a draft of proposed regulations.

The actions and recommendations of the Merchant Marine Council with respect to comments and views received and changes in proposals are hereby adopted.

By virtue of the authority vested in me as Commandant, U.S. Coast Guard, by section 632 of Title 14, United States Code, and 49 CFR 1.4(a)(2) to promulgate regulations in accordance with the laws cited with the regulations below, the proposed regulations published in the Federal Register of October 1, 1966 (31 F.R. 12860-12912), as amended by this document, are hereby adopted and shall be in effect on and after March 1, 1968: *Provided*, That the regulations in Subchapter U may be complied with during the interim period prior to the effective date specified in lieu of existing requirements. The changes to the rules and regulations published October 1, 1966, are in this document.

The complete text of these changes has been published in the Federal Register of January 27, 1968, Part II.

These regulations may be obtained from the local marine inspection office or by writing Commandant (CAS-2) U.S. Coast Guard, Washington, D.C. 20591.

NOTICE

DEPARTMENT OF TRANSPORTATION

Coast Guard

FUNNEL MARK OF THE UNITED STATES STEEL CORP. (INTER- COASTAL AND GREAT LAKES FLEET)

Notice of Registration

The Commandant, U.S. Coast Guard in accordance with the provisions of 19 CFR 3.81 (§ 3.81, Customs Regulations), issued under the authority of the Act of May 28, 1908,

as amended (46 U.S.C. 49), has registered the funnel mark of the United States Steel Corp. (Intercoastal and Great Lakes Fleet) as described below:

(a) The funnel mark will appear on a black and silver funnel, the uppermost one-third being black and the remaining two-thirds silver. A silver colored United States Steel Corp. trademark will appear on the port and starboard sides of the funnel centered symmetrically in the black portion with the lateral axis of the trademark parallel to the collar of the funnel. The trademark consists of a silver ring, the outside diameter of which is 6', the inside diameter 5'-1½". Centered in the ring are the letters "USS" in silver. The height of the letters is 2½'. The width of the "U" is 1.25', the width of the "S" is 1.3'.

Colored scale replica drawings of the funnel mark described above are on file with the Federal Register Division, National Archives and Record Service.

(Federal Register of December 20, 1967)

STORES AND SUPPLIES

Articles of ships' stores and supplies certificated from January 1 to January 31, 1968, inclusive, for use on board vessels in accordance with the provisions of Part 147 of the regulations governing "Explosives or Other Dangerous Articles on Board Vessels" are as follows:

CERTIFIED

Drew Chemical Corp., 522 Fifth Ave., New York, N.Y. 10036: *Certificate No. 770*, dated January 5, 1968, TANK STRIP; *Certificate No. 771*, dated January 5, 1968, TANK SPRAY; *Certificate No. 772*, dated January 5, 1968, TANK SPOT; *Certificate No. 773*, dated January 11, 1968, RUST STRIPPER.

THEOCHEM Laboratories, Inc., P.O. Box 15367, Tampa, Fla. 33614: *Certificate No. 774*, dated January 18, 1968, SOLVITE 37 COLD WASH DEGREASER.

Pilot Chemical, Inc., 860 West 44th St., Norfolk, Va., 23508: *Certificate No. 775*, dated January 23, 1968, PILOT FOTX; *Certificate No. 776*, dated January 23, 1968, PILOT CARBON SOLVENT, BURNER TIP CLEANER; *Certificate No. 777*, dated January 23, 1968, PILOT 129-E DEGREASER; *Certificate No. 778*, dated January 23, 1968, PILOT OIL SPILL ERADICATOR (OSE); *Certificate No. 779*, dated January 23, 1968, PILOT SHIPSHAPE; *Certificate No. 780*, dated January 23, 1968, PILOT PHOSPHO; *Certificate No. 781*, dated January 23, 1968, PILOT X-200; *Certificate No. 782*, dated January 23, 1968, PILOT TANK WASH; *Certificate No. 783*, dated January 23, 1968, PILOT PROCO-SOL #1; *Certificate No. 784*, dated January 23, 1968, PILOT PROCO-SOL #2;

Circular

NVIC 6-67

This Navigation and Vessel Inspection Circular establishes the guidelines and extent of inspection of the control systems and safety devices of automated boilers and automated propulsion machinery of vessels.

Since late 1964 the Coast Guard has approved the installation of certain control and safety systems to provide automation for ships machinery plants. These systems include Coast Guard required safety devices which require routine testing and inspection. On the basis of the automated features, certain engineroom watchstanders have been eliminated from the minimum manning standards. In order to assure reliability, these sys-

Yacht Admeasurement Pamphlet

A new pamphlet entitled "Yacht Admeasurement and Documentation" CG-177, dated November 1, 1967, formerly a Bureau of Customs pamphlet has been published by the U.S. Coast Guard.

Copies of this pamphlet may be obtained at the local marine inspection office or by writing Commandant CAS-2, U.S. Coast Guard, Washington, D.C. 20591. \$

terms receive exhaustive tests at the initial installation. To maintain the high reliability of safety in the automated mode, the plant shall have close inspection and test during the inspections for certification and at midperiod reinspections. Most installations have been provided with an approved test procedure which is retained on board the vessel as a part of the operator's manual. This test procedure will be followed during the check of the systems.

Each vessel equipped with automated or centralized propulsion machinery control shall be subject to a check of the automated systems and safety devices during the inspections for certification and at the midperiod reinspections. The systems check shall consist of a review of past performance logs, a visual examination of the systems and an operational test of all required safety and control features as listed in the approved test procedures. Underway tests may be included if deemed necessary by the officer in charge, Marine Inspection, to verify adequate operation under conditions of fluctuating or maneuvering load changes.

An approved test procedure is normally furnished at the time of the initial installation as part of the plan approval. However, the plans for several of the early systems were ac-

cepted which did not include an approved test procedure. In these instances, the officer in charge, Marine Inspection, conducting the inspection will meet with the owner's representative to resolve problems concerning these inspections and to provide a test procedure to insure that the control components and safety devices are operating properly. A guide is enclosed describing the points needing consideration in the preparation of a test procedure. Once a suitable test procedure for a particular vessel is established, it should be documented in triplicate and stamped as approved by the officer in charge, Marine Inspection. One copy should be retained on the vessel in the operator's manual; one copy retained by the cognizant officer in charge, Marine Inspection; and one copy submitted to commandant (MMT) as part of the vessel's record.

The officer in charge, Marine Inspection, will submit a brief letter report of the inspection indicating any deficiencies and the general physical condition of the system to commandant (MVI).

If it is determined that the automated features and safety devices are not reliable and that there is evidence of frequent or protracted periods of manual operation, then the officer in charge, Marine Inspection, shall insure that the manning requirements are sufficient to man the engine room properly.

Copies of this circular with enclosure (1) may be obtained at the local marine inspection office or by writing Commandant CAS-2, U.S. Coast Guard, Washington, D.C. 20591.

NVIC 7-67

This circular publishes material requirements for steels in low temperature service (i.e., below 0°F). Plate, shapes, pipe, tube, pipe fittings, flanges, castings, bolting, and their weldments are included in these requirements.

Navigation and Vessel Inspection Circular No. 2-64 dated 30 April 1964 is hereby cancelled. It is anticipated that this circular will be cancelled when the currently proposed changes to Subchapter F, Marine Engineering Regulations and Material Specifications, become effective.

Navigation and Vessel Inspection Circular No. 2-64 published test procedures and frequency of tests for assuring the ductile behavior of materials at low service temperature. In the past, this assurance was obtained basically through the testing of production material by the Naval Research Laboratory drop weight procedure. Sufficient data has now been analyzed to permit reliable correlations of Charpy V-notch energy with drop weight test results for a number of materials. Where this has been possible, the more simple Charpy V-notch test is now specified in lieu of the drop weight test.

Ferritic materials must be tested to ascertain that at the service temperature¹ they are adequately tough and possess sufficiently ductile characteristics for the intended service. Toughness tests are conducted at 10°F below the service temperature to account for the inaccuracies inherent in such tests. The prescribed tests are used to judge both the parent material and fabrication techniques, and as a quality control procedure. Charpy V-notch impact testing is used for toughness determination whenever possible.

Special attention is drawn to the fact that the Charpy Keyhole and U-notch specimens are NOT acceptable substitutes for the Charpy V-notch specimen and should not be used to qualify materials within the scope of this circular.

The field of brittle fracture prevention and toughness testing is constantly undergoing development. The requirements contained in the enclosure to this circular are based on

¹ Service temperature is defined in 46 CFR 38.05-2(b).

current knowledge of the subject, and will be updated as new information is developed. The use of toughness testing does not absolve designers and fabricators of their responsibilities to design and construct with brittle fracture prevention in mind.

A proposed toughness testing schedule, covering base material testing, welding procedure qualifications, and production quality control testing shall be drafted by the fabricator to satisfy the requirements of enclosure (1), and shall be submitted for approval to the Commandant (MMT).

Base Material Testing

(1) Toughness tests performed by the manufacturer of the material, where the results are certified and accompany the mill test certificate, are not required to be witnessed by a Coast Guard inspector.

(2) Toughness tests performed by the fabricator shall be witnessed by a Coast Guard inspector.

Weld Procedure Qualification Testing. The toughness testing requirements prescribed in enclosure (1) are in addition to the conventional procedure test requirements outlined in 46 CFR 56. All weld procedures for service temperatures colder than 0°F, whether for use on piping systems, pressure vessel type tanks² or non-pressure vessel type tanks, including the secondary barrier, shall be qualified in accordance with both the above stated conventional and toughness test requirements. A separate procedure qualification shall be conducted for each material. Procedure qualification thickness ranges shall be as indicated in Table III of the enclosure. All procedure qualification testing and test results shall be handled by the cognizant Officer in Charge, Marine Inspection, in the manner currently prescribed in 46 CFR 56.01-15.

Weld Production Testing. The weld production testing require-

ments prescribed in enclosure (1) are applicable to pressure vessel type tanks and to non-pressure vessel type tanks. For pressure vessel type tanks, these toughness test requirements are in addition to those conventional production tests required by 46 CFR 56. All weld production testing and test results shall be handled by the cognizant Officer in Charge, Marine Inspection, in the manner currently prescribed in 46 CFR 56.05-1.

Welder Performance Qualification. For low temperature applications, each welder shall demonstrate his ability to weld satisfactorily in accordance with procedures qualified in accordance with enclosure (1). The welder shall be qualified in the position prescribed by the procedure except that qualification for the vertical down position shall qualify a welder for all positions.

Toughness tests are not required for welder qualification. Welder performance qualification testing and test results shall be handled by the cognizant Officer in Charge, Marine Inspection, in the manner currently prescribed in 46 CFR 56.01-10.

Copies of this circular with enclosure (1) may be obtained at the local marine inspection office or by writing Commandant CAS-2, U.S. Coast Guard, Washington, D.C. 20591.

NVIC 8-67

This circular is published to update the procedures and standards for the use of special ballast fluids as fixed ballast.

The problems which have arisen from the use of high density drilling mud type fluids as fixed ballast indicate that this concept needs special consideration. Without specific treatments, the ballast fluids may generate dangerous quantities of methane gas and cause rapid corrosion of ballast tanks due to inherent acidity. Furthermore, safeguards are needed for preventing growth of sulfate-reducing bacteria which are known to cause corrosion of iron in soil.

Dangerous Cargo Regulations in Paperbound Volume

The Coast Guard's Regulations for Dangerous Cargoes in effect on January 1, 1968, are printed in a paperbound volume. Shipowners, officers, and others interested are urged to purchase these regulations.

The Division of Federal Register, the National Archives, General Services Administration, publishes this pamphlet. The supplements are available in July of each year. Since these regulations are a "sales" publication, they are not available at local Coast Guard offices.

Copies of this volume entitled "Title 46, Code of Federal Regulations, containing parts 146 and 147" (Subchapter N—Dangerous Cargoes), may be obtained as a sales publication from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20591, price \$2.50.

REQUIREMENTS

a. Special drilling-mud type fluids may be used as fixed ballast in double bottoms of vessels 100 gross tons and over, subject to the requirements of 46 CFR 93.13-5 and 46 CFR 74.15-5, as applicable, and the following comments:

(1) The ballast fluid should at least meet the following specifications:

(a) Bacteriostatic agent. A bacteriostatic agent effective against aerobic as well as anaerobic bacteria should be thoroughly mixed with the fluid.

(b) Anticorrosivity. To minimize corrosion, the fluid should be as alkaline as it is practical to maintain it. Corrosion inhibitors may be added to the fluid, however, they should not interfere with the action of the bacteriostatic agent or affect the physical properties of the fluid such as suspension, pumpability, etc.

² Pressure vessel type tanks and non-pressure vessel type tanks, including the secondary barrier, are defined in 46 CFR 38.05-3 and 38.05-4, respectively.

(c) Pumpability. The fluid should be readily pumpable in and out of the ballast tanks using ordinary portable sludge or slurry pumps. Readily pumpable should be interpreted to mean pumpable after agitation with or without the use of a rheological control agent to assist in the degelling process.

(d) Settling. Fluids should have sufficient viscosity and gell strength to minimize settling of solids.

(e) Thermal expansion. Volumetric expansion should not be greater than four tenths of one percent (0.4%) over a temperature range from 32° F. to 90° F. The fluid should withstand a low temperature ambient of 32° F. without freezing. Unless adjacent to high temperature spaces, the expected maximum temperature of the ballast should be taken as 90° F.

(f) Proposed ballast. A sample of proposed ballast fluid should be prepared by the manufacturer and subjected to at least a 30-day test to insure that all of the above requirements are fulfilled. A report of the test should be made available to the cognizant Officer in Charge, Marine Inspection prior to installation of the fluid. A copy of the test report should also be forwarded to the Commandant (MHM) for information.

(2) Mud ballast tanks should be designed for a head of fluid of the specific gravity of the fluid equal to the height of the top of the expansion trunk.

(3) Each ballast tank should be fitted with:

(a) An adequate expansion trunk. The size of the expansion trunks should be adequate for the maximum volumetric expansion of the fluid as specified in (1) (e).

(b) Proper vents. Each vent should be equipped with a flame screen as a safeguard in the event methane gas is evolved from the fluid.

(4) Corrosion test plates. Corrosion test specimens in the form of two 3-inch by 24-inch steel plates 1/2-inch thick of the same material as

the internal structure of the ballast tanks welded together to form plates 6 inches wide should be attached to the underside of the manhole cover on each expansion trunk for the ballast tanks in such a way that the corrosion test specimens hang down to the mid-depth of the ballast tanks and are electrically insulated from the vessel. A permanent record of the date of installation, thickness and weight of each corrosion test specimen should be kept aboard ship. Specimen thickness, weight, and date of inspection should be placed in this record after each inspection.

(5) In pumping the fluid into the ballast tanks, care should be taken to eliminate all free air spaces except in the expansion trunks. Permanently installed ship's pumps or piping should not be used for handling the fluid.

INSPECTIONS

As provided for by the American Bureau of Shipping Rules, 43.7.1(h), the following procedures may be followed in lieu of emptying fixed ballast tanks each inspection period:

(1) The atmosphere in the vent from each tank should be sampled and analyzed by a marine chemist to determine if gases are being evolved.

(2) A sample of ballast fluid from the mid-depth of each tank should be removed under sterile conditions for analysis to determine the bacteriostatic agent residual, and the presence of methane gas or gas-producing bacteria. If there is evidence that the bacteriostatic agent residual is inadequate to prevent bacteria colony growth, the fluid should be pumped out and re-treated with a bacteriostatic agent.

(3) The tank material test pieces should be examined to determine the apparent type and rate of corrosion. If there is indication that extensive or accelerated corrosion is taking place, the mud should be pumped out and the tank cleaned for internal examination.

Copies of this circular may be obtained at the local marine inspection office or by writing Commandant (CAS-2) U.S. Coast Guard, Washington, D.C. 20591.

NVIC 1-68

DENNIS WINSLOW ALEXANDER, License No. 306847, Merchant Mariner's document No. Z-204028-D4, is fraudulently using his license and document to obtain employment in the Merchant Marine. This circular is published to advise the shipping industry, and enlist their aid in locating him.

A Coast Guard Hearing Examiner revoked the license as Third Assistant Engineer and the merchant mariner's document issued to Dennis Winslow Alexander following completion of a hearing. Mr. Alexander refused to surrender his license and document and has continued to sail. He was indicted by a Federal Grand Jury for the Northern District of California for violation of Title 18, U.S. Code, Section 2197—Misuse of Merchant Mariner's Document, and Title 18, U.S. Code, Section 1001—False Statements. The U.S. Marshal, San Francisco, Calif., currently holds a warrant for Mr. Alexander's arrest.

Mr. Alexander has continued to sail as Third Assistant Engineer on coastwise vessels. Latest information available indicates he has sailed between East Coast and Gulf ports for various companies and since revocation of his license and document, has also sailed on the Great Lakes and West Coast.

Dennis Winslow Alexander, License 306847, Z-204028-D4; is wanted by the U.S. Marshal for arrest for the above violation of law and by the U.S. Coast Guard for surrender of his license and document. Anyone knowing the whereabouts of Mr. Alexander is requested to notify the nearest Coast Guard Marine Inspection Office, the Commandant (MVP), U.S. Coast Guard Headquarters, Washington, D.C. 20591, or the nearest U.S. Marshal.

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 may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. Subscription rate is \$1.50 per month or \$15 per year, payable in advance. Individual copies may be purchased so long as they are available. The charge for individual copies of the Federal Register varies in proportion to the size of the issue but will be 15 cents unless otherwise noted in the table of changes below. Regulations for Dangerous Cargoes, 46 CFR 146 and 147 (Subchapter N), dated January 1, 1968, are now available from the Superintendent of Documents, price: \$2.50.

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 (8-1-62).
115	Marine Engineering Regulations and Material Specifications (3-1-66). F.R. 12-6-66, 12-20-67.
123	Rules and Regulations for Tank Vessels (5-2-66). F.R. 12-6-66, 12-9-67, 12-27-67, 1-26-68, 1-27-68.
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.
172	Rules of the Road—Great Lakes (9-1-66).
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.
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, 12-23-67.
190	Equipment Lists (8-1-66). F.R. 9-8-66, 11-18-66, 2-9-67, 6-6-67, 6-14-67, 6-30-67, 8-29-67, 10-7-67.
191	Rules and Regulations for Licensing and Certifying of Merchant Marine Personnel (2-1-65). F.R. 2-13-65, 8-21-65, 3-17-66, 10-22-66, 12-6-66, 12-13-66, 6-1-67, 11-16-67.
200	Marine Investigation Regulations and Suspension and Revocation Proceedings (5-1-67).
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 (3-1-67). F.R. 3-29-67, 12-23-67.
249	Merchant Marine Council Public Hearing Agenda (Annually).
256	Rules and Regulations for Passenger Vessels (5-2-66). F.R. 12-6-66, 1-13-67, 4-25-67, 8-29-67, 12-20-67, 1-27-68.
257	Rules and Regulations for Cargo and Miscellaneous Vessels (1-3-66). F.R. 4-16-66, 12-6-66, 1-13-67, 12-9-67, 1-26-68, 1-27-68.
258	Rules and Regulations for Uninspected Vessels (3-1-67). F.R. 12-27-67, 1-27-68.
259	Electrical Engineering Regulations (3-1-67). F.R. 12-20-67, 12-27-67, 1-27-68.
266	Rules and Regulations for Bulk Grain Cargoes (11-1-66).
268	Rules and Regulations for Manning of Vessels (5-1-67).
270	Rules and Regulations for Marine Engineering Installations Contracted for Prior to July 1, 1935 (11-19-52). F.R. 12-5-53, 12-28-55, 6-20-59, 3-17-60, 9-8-65.
293	Miscellaneous Electrical Equipment List (4-1-66).
320	Rules and Regulations for Artificial Islands and Fixed Structures on the Outer Continental Shelf (10-1-59). F.R. 10-25-60, 11-3-61, 4-10-62, 4-24-63, 10-27-64, 8-9-66.
323	Rules and Regulations for Small Passenger Vessels (Under 100 Gross Tons) (1-3-66). F.R. 12-6-66, 1-13-67, 12-27-67, 1-27-68.
329	Fire Fighting Manual for Tank Vessels (4-1-58).

CHANGES PUBLISHED DURING JANUARY 1968

The following have been modified by Federal Registers:

CG-123, and CG-257, Federal Register, January 26, 1968.

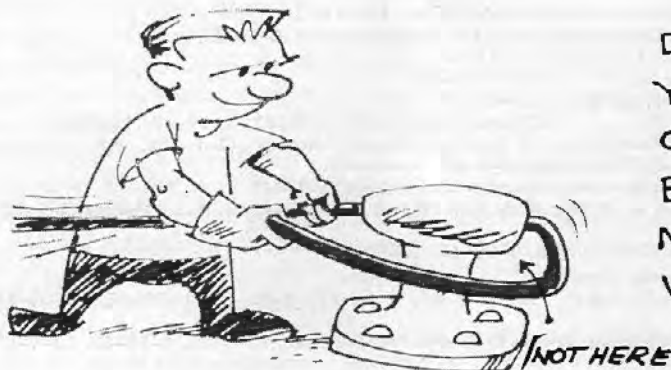
CG-123, CG-256, CG-257, CG-258, CG-259, CG-323, and Oceanographic Vessels Regulations, Federal Register, January 27, 1968, Part II.

LIFELINES

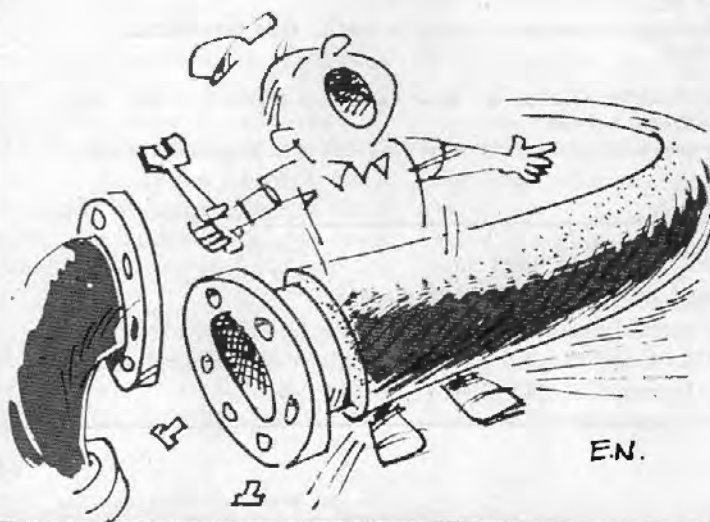
THREE POINTS TO REMEMBER



BEWARE THE
USE OF GLOVES
WHEN SWINGING
ASHORE ON THE
LANDING BOOM!



DON'T GET
YOUR FINGERS
CAUGHT BETWEEN
BOLLARD AND
MOORING
WIRE!



WATCH OUT WHEN
DISCONNECTING HOSE
—THE BEST
INSURANCE IS
SAFETY SHOES

BE CAREFUL!