

PROCEEDINGS

OF THE MERCHANT MARINE COUNCIL



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SEASON'S GREETINGS

PROCEEDINGS

OF THE

MERCHANT MARINE COUNCIL

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The Merchant Marine Council of The United States Coast Guard

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IN THIS ISSUE . . .

Admiral Edwin J. Roland sets forth some of the challenges to Merchant Marine Safety precipitated by the rapid advances in chemistry, technology, and design, beginning page 203.

The mysterious loss of the *SS Marine Sulphur Queen* comes in for review—as the major casualty of the year—by the Chief, Casualty Review Section, USCG, beginning page 206.

Intergovernmental Maritime Consultative Organization—IMCO—is revisited by an officer on the staff of the Coast Guard's International Maritime Coordinating Staff, beginning page 209.

The series of articles comparing the 1960 and 1948 Rules of the Road is continued, beginning on page 216.

Season's Greetings

To the mariner both at sea and ashore, I extend my sincere best wishes. May your Christmas be peaceful and your New Year be bountiful in health and safety.

E. J. ROLAND,
Admiral, U.S. Coast Guard,
Commandant.

THIS COPY FOR NOT LESS THAN 20 READERS—PASS IT ALONG

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FRONT AND BACK COVER: Season's Greeting.

The back cover courtesy of National Safety Council.

NOTICE

The Feature "Nautical Queries" will not be published in this issue, but will be resumed next month.

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Commandant Outlines Challenges to Merchant Marine Safety

THE AMERICAN MERCHANT MARINE CAN PERFORM ITS ROLE EFFECTIVELY ONLY BY THE UNITED EFFORT AND ACTION OF ALL THOSE INTERESTED IN THE PROGRESS OF THE INDUSTRY. THE COAST GUARD IS, BY DEFINITION, EXTREMELY INTERESTED IN BOTH THE PHYSICAL AND ECONOMIC HEALTH OF THE MARITIME COMMUNITY

SOUND ADMINISTRATION procedures require periodic review of all practices and techniques, and those of the Coast Guard are no exception. The area of Merchant Marine Safety, for example, is one in which complacency cannot be tolerated.

It is a matter of history that major tragedies have provided the stimuli for the development of most maritime safety regulations. In fact, one of the major objectives of our marine casualty investigations is to determine if any means exist to prevent the recurrence of casualties. Until recently there has been ample justification for using such an "after the fact" approach. However, with the advent of today's methods of storing and analyzing data, we hope to be able to avoid casualties by using scientific methods to anticipate them. Such an approach will necessitate changes in the Coast Guard's techniques and approaches to problems.

Sailors are basically a conservative lot, slow to accept change. There is good reason for this; the sea is a constant, timeless medium—ever restless and threatening. When one ventures to wrest his living from this elemental force, it is more reassuring to do so with the time-proven than with the untried. However, the fields of marine design and technology have certainly not been immune to change.

In recent years, there has been a trend toward the design of more specialized merchant vessels. New materials, many of them virtually unknown 20 years ago, are becoming commonplace in the maritime industry. These forward steps are keeping the Coast Guard's Merchant Marine technical staff busy. The eventuality of change and the need for progress in this highly competitive industry is recognized. Each new material and each new design must be evaluated by the Coast Guard for its effect on safety. This means that the experience gained with the more conventional designs and materials must, somehow, be related to the new concepts. Looking for a common

base against which to measure a sometimes elusive and nebulous "standard of safety" is not easy.

Several recent challenging design proposals typify the variety of technical problems which the Coast Guard is called upon to evaluate in order to preserve public safety.

HYDROFOILS

Although Alexander Graham Bell constructed an operational hydrofoil in 1919, the full commercial potential of these vessels in the *United States* was not realized until very recently. Eighteen hydrofoils have been certificated by the Coast Guard in the last 2 years with many more on the way.

This type of vessel requires a new approach to marine safety. Weight, of course, is a critical factor in hydrofoil design. As with airplanes, it is possible to make a hydrofoil so safe that it would never lift out of the water on its foil—would never "fly."

Realizing this weight limitation, safety features must be carefully evaluated against the proposed operation of the craft. For example, it is impractical for hydrofoils to carry heavy lifeboats. To compensate for a reduction of lifesaving equipment, we ask that survival capability be built into the craft. The vessel must therefore remain afloat despite a tear in her hull such as might result from striking a log or other debris. It is considered essential that foils be designed to shear off without causing a puncture of the hull.

GROUND EFFECT MACHINES

Ground effect machines, or GEMs, are vessels with many of the technical problems of hydrofoils. Additionally, there are operational problems involved in control of the craft. Although the U.S. Navy has been experimenting with GEMs for some time, the first serious proposal for commercial GEM operating in the United States has only recently been received. To be specific, the Coast Guard is reviewing a proposal for experimental operation of a ground effects vessel



ADM. Roland

in passenger service between San Francisco and the Oakland airport.

OFFSHORE DRILLING RIGS

Some mobile offshore drilling rigs have been designed with the ability to navigate from one drilling site to another under their own power. The design features of these specialized ships are examined by the Coast Guard applying general engineering principles since there are no specific standards which apply.

An example of this unusual type of craft is Project MOHOLE, a proposed drilling platform being designed to explore the earth's mantle by deep water coring. The National Science Foundation has asked the Coast Guard to certificate this vessel. Obviously, there are structural innovations in this craft making it quite different from all others. Additionally, the large number of technical personnel employed in the laboratory platform and the height of the platform above the water, cause new problems with respect to fire protection and the launching of lifeboats. To provide an adequate degree of safety, it was determined that the vessel should not only be designed with sufficient strength and stability, but that structural fire protection should be as comprehensive as in a passenger vessel.

CRYOGENICS

An even more complicated problem is the carriage of liquefied gases such as propane, methane, hydrogen, and oxygen. These cargoes are not only explosive and flammable, but their temperatures may be as low as -260°F or lower. At such cryogenic temperatures conventional shipbuilding materials become brittle and, hence are unsatisfactory.

A small-scale example of a brittle fracture from a cryogenic leak occurred about a year ago. A liquid nitrogen (-320°F) cooled refrigerated trailer was being loaded aboard ship when a small quantity of the unevaporated nitrogen spilled on the deck. Brittle fracture of the deck plating occurred instantly. One can easily visualize how a sizable cryogenic cargo leak could cause the loss of a vessel. Special safeguards are therefore required to prevent leakage from touching the hull. There are additional problems of expansion and contraction of the tanks, relief valves, insulation, gauging, and venting, to mention a few.

The cryogenic characteristics of these cargoes have resulted in many new materials being proposed for marine application; plastics and plastic reinforced fiberglass among them. This raises problems of quality control. It is very difficult to be sure of the uniformity of nonmetallic materials, since many of their capabilities, such as the aging characteristics of plastics, are often not known even by the manufacturers.

ALUMINUM

When one mentions material problems with respect to maritime safety, aluminum always comes to mind. Its weight-saving advantages over steel have long been recognized. However, it presents a safety problem in that it melts at a much lower temperature than steel. In both the International Convention for Safety of Life at Sea and Coast Guard regulations steel is inherently a yardstick of material integrity against fire. The Coast Guard has necessarily moved slowly in allowing aluminum, requiring special protection before permitting its use in some applications. This caution has apparently been justified in view of two known fires aboard foreign cargo vessels which damaged the aluminum superstructure almost beyond recognition.

BULK CHEMICAL CARGOES

Another technical problem confronting the Merchant Marine Safety program concerns the continued increase in shipment of bulk chemical cargoes.¹ Economic considerations make such shipments ever more practicable, and the traffic increases regularly, both in tonnage and in variety. The safety record of such shipments has thus far been excellent, but there have been a number of instances where calamity has been avoided by only a narrow margin. To recognize the dangers and to de-

This outline of challenges to marine safety is adapted from an address by Admiral Edwin J. Roland to the American Merchant Marine Conference in October 1964.

velop reasonable, effective safeguards before accidents occur, a Chemical Engineering Branch has been established which functions in the Office of Merchant Marine Safety at Coast Guard Headquarters.

The first task which faced this group was that of surveying the entire field of bulk transport by water in order to determine what hazardous liquids are either now being carried aboard ships and barges or are likely to be carried in the near future. Also necessary was the determination of toxicity, combustibility, and stability of each material on the list as well as unusual properties such as reactivity with water or incompatibility with certain materials of construction. Faced with this rather formidable assignment, the Coast Guard enlisted the assistance of the National Academy of Sciences. The Academy has devised a numerical system of classifying toxicity, and developed criteria for assigning classifying numbers to compounds. A great deal of this phase of the problem has been completed.

The next step involves weighing all of the information previously gathered and deciding the degree of precaution which must be taken to guard against uncontrolled release of the material. In deciding on the degree of containment, it is realized that spillage or uncontrolled release under all possible circumstances cannot be prevented. A system of controls approaching this ultimate goal would be highly unreasonable. While the Coast Guard wishes to place no undue financial burden on the shipping industries, it must endeavor to protect operating personnel and the public at large from the consequences of a spill or an explosion of such bulk.

Consideration of these problems is coordinated with industry through several panels which include representatives of the various interests involved. The Chemical Transportation Advisory Panel, for example, includes representatives from the Manufacturing Chemists' Association. The Western Rivers Panel's Committee on Dangerous Cargoes has among its members representatives of many shipping interests.

Regulations governing the shipment of a number of bulk cargoes are already in effect. In addition, a re-

vised classification list of various chemicals is being printed, and several amplifying instructions are being prepared. Still in the planning step is a pocket-sized guide book which will furnish operating personnel with ready-reference information.

These tasks cannot be done overnight, nor can they be done without the assistance and cooperation of the chemical shipping interests.

INTERNATIONAL LOAD LINE

A matter which has kept the U.S. Merchant Marine unhappy for some time is the 1930 Load Line Convention. The Convention is obviously in serious need of amendment, but this can only be done by the unanimous consent of all the signatory members. Inasmuch as several members are not now speaking to each other, and further, with the tremendous change in governments since 1930, which makes it difficult to tell just who is a member, it is impossible to receive unanimous consent. Accordingly, the only solution appears to be a new Load Line Conference under the sponsorship of International Maritime Consultative Organization (IMCO).²

CONFERENCE IN 1966

At the third session of the IMCO Assembly, the United States proposed that a conference be held to produce a new Load Line Convention. This proposal was contested by several governments, but after further discussion it was agreed that a conference would be held during 1966.

The United States is in an excellent position for this upcoming conference due to the tremendous work accomplished by the U.S. Load Lines Committee. This Committee was convened by the Coast Guard in 1958 and represents a cross-section of government and industry interested in maritime shipping.

The U.S. Load Lines Committee finalized their work and presented a draft convention. This draft has been forwarded to IMCO, which has since circulated copies to all member governments suggesting that proposals be submitted in the form of comments on the U.S. draft convention.

COLLISION REDUCTION

The past decade has resulted in many gradual changes in vessel operations which affect the probability of collisions. Among these changes are increases in size and speed of vessels and the opening of various waterways in the heart land of our country to deeper-draft oceangoing traffic.

¹ See "Proceedings" of April 1963, September 1963, February 1964, and October 1964 for more on this topic.

² See "Proceedings" of June 1960, July 1961, and elsewhere in this issue for more on IMCO.

The sudden appearance of large oceangoing vessels on the Great Lakes is a well known result of the opening of the St. Lawrence Seaway. This has resulted in vessel operation on the Great Lakes becoming less safe than previously primarily because (1) the oceangoing masters and mates are not completely familiar with the Great Lakes Rules of the Road, (2) oceangoing vessels sometimes fail to follow the lane recommendations marked on Lake Survey Charts and (3) the Great Lakes Agreement for a continuous radio watch on the bridge is not always adhered to. Of equal importance is the three- or four-fold increase in deep-water vessel tonnage at the Port of Baton Rouge during the past 10 years. This has also increased the overall collision danger due to basic differences in the Rules of the Road encountered by ocean vessels when north of New Orleans and because of increased speed and decreased relative maneuverability of larger vessels.

These conditions have challenged the Coast Guard and the maritime industry to devise an effective means of reducing collision danger. To this end, a four-prong study has been undertaken. The study covers Rules of the Road, bridge to bridge radio,³ traffic lanes, and harbor surveillance radar.

UNIFIED RULES OF THE ROAD

Rules of the Road studies are being made to draft a combined set of U.S. Rules following the 1960 International Rules as closely as possible.⁴ It is believed that the Influx of foreign and American oceangoing vessels into U.S. waters necessitates this. The fewer changes that must be made when entering local U.S. waters, the easier the complete familiarization with U.S. Rules will be for deep water mariners. While it would be a simple matter to follow the International Rules to the letter in all U.S. waters, existing physical conditions such as height of bridges and sharpness of river bends make that impossible. We realize that there may be some areas wherein deviation from the International Rules will be necessary, but every effort will be made to avoid conflict between the rules in those areas and the International Rules. In this regard, it is the Coast Guard's intention to obtain advice from all parties concerned.

BRIDGE-TO-BRIDGE COMMUNICATION

An investigation and continuing appraisal of bridge-to-bridge radio usage for safety of navigation is being carried out. It appears that there is great merit in using direct voice radio contact between persons piloting vessels in U.S. waters. While this is a logical backup or extension of whistle signals of intent, studies must determine whether it is necessary. Several meetings have been held with the FCC in this regard. As a result, it appears that compulsory bridge-to-bridge communication might be proposed for all areas of the United States except the Great Lakes. No valid reasons were evident for suggesting changes to present bridge-to-bridge radio usage on the Great Lakes. It has been suggested that voluntary adoption of a form of bridge-to-bridge contact should suffice in many areas, but it would be difficult to obtain the 100-percent participation necessary for the system to be effective.

SEA TRAFFIC LAWS

Traffic lanes, as originally recommended by the Lake Carriers' Association on the Great Lakes, have played an important part in reducing the number of close quarters situations between vessels in those waters. This idea might be beneficial in other areas of high traffic density, such as the approaches to major U.S. ports. If Coast Guard studies indicate that official backing of the concept of definite routes in certain directions being marked on charts is necessary as a safety measure, steps will be taken to seek the authority to proceed. If this is done, a limited network of lanes may be proposed wherever practicable, which would provide well-separated port-to-port meeting and passing situations.

Shore-based radar advisory systems are employed in many large harbors in Europe today. They seem to be successful in safely and efficiently dispatching vessels through confined waters during periods of low visibility thus reducing vessel delays and making ports more attractive competitively. Recently, a study group to make a preliminary survey of the need for such systems in this country was authorized. The group will recommend whether or not a detailed feasibility study is indicated.

The Coast Guard believes the Merchant Marine industry does not seek additional Federal regulations. However, the industry may well agree that the field of collision prevention could stand some improvement and updating. A single set of up-to-date rules of the road for U.S. waters, the

enforced use of modern communication equipment as an anticollision aid, the use of separate traffic lanes wherever necessary and practicable, and possible shore-based radar advisory systems appear as possible developments which could result in safer operation.

POWER PLANT AUTOMATION

A major effort is underway at the present time by the maritime industry to utilize "automation" in the design of new vessels and in the alteration of existing vessels by taking advantage of up-to-date technological advances.

During the past several years designs have been submitted for Coast Guard approval of approximately 50 major oceangoing or Great Lakes dry cargo and tank vessels involving "automation" of propulsion plants. These submissions, coupled with the many advances which are occurring in shipboard power plant design, have presented a challenge to the Coast Guard insofar as plan approval procedures, technological knowledge, and inspection procedures are concerned. A major intent of power plant automation is, of course, the reduction of the number of operating personnel with attendant cost savings. It has therefore been necessary for the Coast Guard to closely review its basic thinking relative to minimum manning standards.

Depending upon the scope of automation achieved in a particular vessel design, certain manning reductions involving the unlicensed engineroom watchstanding personnel have been authorized. The basic automation patterns to date have taken two forms: (1) essentially full automation of boilers, auxiliary machinery, etc., including pilothouse control, centralized engineroom control, and data logging, (2) partial automation primarily involving boiler operation.

At the request of certain vessel owners, temporary regulations have been promulgated which authorize the new qualified engine department ratings of deck-engine mechanic and engineman. These ratings are temporary since it is felt that operating experience of these automated vessels, when achieved, will provide the vessel owners, operating personnel, and the Coast Guard with more extensive and positive background upon which to base future manning and other requirements appropriate to these modern vessels.

The American Merchant Marine can be assured that the Coast Guard will make every effort to keep its thinking and expertise abreast of the industry toward the end of facilitating a safer, more modern, more competitive merchant marine.‡

³ See "Proceedings" of February 1960 for more on Bridge-to-Bridge radio.

⁴ See "Proceedings" of November 1964 for an article supporting Inland Rules unification. The "Proceedings" will carry the Coast Guard's proposed unification plan in its January 1965 issue.

1964 Marine Casualties:

A REVIEW OF MARINE CASUALTIES

CDR A. E. Armstrong, USCG

MOST OF YOU are no doubt aware that the master of a vessel involved in a marine casualty is required to make a report to the Coast Guard. The casualty is then investigated by the Coast Guard to determine its cause for the purpose of preventing or reducing the effects of similar casualties in the future. The reports of investigations are forwarded to the Commandant and an annual summary of casualty statistics is compiled. This afternoon I will first discuss recent significant marine casualties and then explain the new layout of the annual statistical report.¹

The most serious and perplexing casualty which has occurred in many years was the loss of the SS *Marine Sulphur Queen*. You will recall that the ship disappeared during adverse weather while on a voyage from Beaumont, Tex., to Norfolk, Va.

A broken name board and a few pieces of lifesaving equipment which were recovered in the Florida Keys are mute witnesses that the ship was lost as it approached the Straits of Florida. The absence of a radio distress message compels the conclusion that the fate which claimed the ship and its crew was sudden.

In the absence of any survivors or the physical remains of the vessel, the Marine Board convened to investigate the casualty could not ascertain the exact cause of the disaster. Without attempting to assign any order of probability, the Board, in its conclusions, commented on the following possibilities:

(1) An explosion may have occurred in the cargo tanks.

(2) The complete failure of the vessel's hull girder may have caused it to break in two.

(3) The vessel may have capsized in synchronous rolling.

(4) A steam explosion may have occurred as the result of a rapid filling of the void space surrounding the cargo tank with water.

In his action on the Board's Report, the Commandant commented on the possibility of an explosion in the void space which surrounded the molten sulphur cargo tank.²

The Board's Report contains detailed information concerning its conclusions. However, since the Commandant's comments are, in part,

This article was presented by CDR Armstrong as an address before the marine section of the National Safety Conference in October 1964.

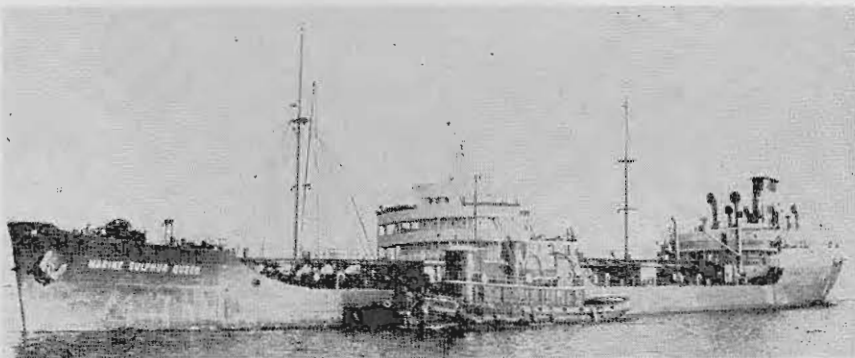
based on information developed after the Board adjourned, a brief discussion of this possibility may be of interest.

The *Marine Sulphur Queen* was a T-2 tanker which had been converted to carry about 15,000 tons of molten sulphur at about 270° F. The cargo was carried in a rather unique tank which was installed in way of the original centerline tanks. The tank was approximately 306 feet long, 30 feet wide, and 33 feet high and was divided into four individual compartments of about equal size. The tank was welded to its supporting structures near the mid-point and permitted to expand, or contract from this mid-point toward the ends. The total expansion was about 4 inches in each direction.

To maintain the temperature of the liquid sulphur, steam heating coils were installed in the four compartments and several inches of fibrous glass insulation covered all exterior surfaces. Each cargo compartment was served by three vents. A 4-inch vent was fitted to each of the two expansion trunks at the after end of the compartment and a 6-inch vent was installed at the forward end and terminated on the weather deck. To allow for the expansion and contraction of the cargo tanks a section of flexible vent pipe was fitted in each

vent. The two after vents had the flexible section located in the pump-house above the weather deck. The forward vent, however, had the flexible section located in the void space between the top of the cargo tank and the weather deck. The void which separated the tank from the surrounding vessel structure allowed an airspace of about 2 feet on each side and about 3 feet at the top and bottom. The void was divided into two watertight compartments by a bulkhead which was common with the bulkhead which separated the second and third cargo compartments. Power ventilation was installed for the void but it was only used when cargo was being loaded or discharged. In addition to the power ventilation, the original cowl type ventilators which previously served the after pumproom were retained when the ship was converted and provided some ventilation of the after void space.

With this brief summary of the vessel's construction let us turn to the events preceding its loss. When the ship was drydocked in January of 1962, sulphur which had previously been accidentally spilled into the after void space was removed and the damaged insulation renewed. Commencing in the late summer of 1962 and continuing until the ship was lost, molten sulphur leaked down through the insulation from the top of the after end of the cargo tank. The amount was so great that it was necessary for the crew to remove it on return voyages to keep the bilge suction lines open. The leakage was accompanied by small fires in the contaminated insulation. The frequency of the fires increased and on one voyage in late December they burned almost continuously. These fires seldom covered more than a few square feet and were extinguished with the steam smothering system or by pouring a bucket of water on them. Because steam from the fire extinguish-



Marine Sulphur Queen

ing system in the void space was escaping through the cowl-type ventilators, the cowls were removed before the last voyage and the vents covered with canvas and lashed down. The exact source of the leakage of molten sulphur was not determined; however, a former crewmember testified that it came from a prior spill or leaking flange. Since all prior spills were cleaned up during the drydock period in January of 1962, a "leaking flange" appears to be the most probable source.

Information received from studies and inspections made after the Board adjourned revealed several significant facts. Agitated molten sulphur releases much more hydrogen sulfide gas than is released when it is quiescent. Calculations show that if about one-half of the hydrogen sulfide and carbon disulfide emitted during heavy weather from one of the cargo compartments of the *Marine Sulphur Queen* had entered the after void space an explosion could have occurred in about 30 hours. Inspection of another sulphur ship which had a similar flexible section in the vent line revealed that more than half had failed by ring fracturing near the flange. In this case, the distortion of the flexible section was less than an inch compared with 2 to 4 inches on the *Marine Sulphur Queen*. This ship had a similar history of sulphur contamination and fires in the void spaces. After the vents were modified and the flexible section removed, the problem was apparently solved.

Let us now return to the last voyage of the *Marine Sulphur Queen*. It is known that one of the after cargo compartments had a serious leak. The most probable cause appears to have been the failure of one or more of the flexible ventilation sections. If it failed completely and returned to a vertical position approximately half the diameter of the vent would be opened to exhaust into the void space. It is known that the rough weather the ship encountered would agitate the cargo. The many fires which occurred in the void space show that a source of ignition was present. Based on radio contact, the ship probably was lost between 0125 on 4 February 1963 and 1123, 4 February 1963, a period of about 30 to 40 hours after taking departure from Sabine Pass.

Based on this information, it must be considered that an explosion in the after void space was a possibility. Such an explosion could have ruptured the bottom of the ship, destroyed the engineroom bulkhead, the watertight bulkhead at frame 59; and with the vessel steaming at 15 knots, it would have sailed itself under.



Bridge Out; Rammed by Tug with Barges

One question remains. Since the leakage had existed and fires had occurred throughout the winter months when the vessel must have encountered heavy weather, why would an explosion have occurred on this voyage and not on a previous voyage? To answer the question one need only remember that the cowl ventilators which had previously provided a degree of ventilation to the after void space were no longer in use.

As a result of this tragedy, the Commandant did not permit the same conversion of a T-2 tanker and required many design changes in new construction. Studies have been undertaken to determine not only the properties of molten sulphur but also the properties of many other "so called" exotic cargoes.

ABOUT THE AUTHOR



CDR Armstrong, entered the Coast Guard in 1939 and was commissioned an Ensign in 1943. During World War II he served in troop transports and convoy escorts. He subsequently served as commanding officer of the cutters *Conifer* and *Blackhaw*. After 13 years at sea and 3 years ashore in the Philippine Islands and Hawaii, he was assigned to Marine Inspection duties. CDR Armstrong is now serving at Coast Guard Headquarters as Chief of the Casualty Review Branch.

Aside from the purely technical aspects of this casualty, it appears that an obvious object lesson can be learned. In a broad sense it can be said that the loss of the *Marine Sulphur Queen* was caused by a complacent attitude on the part of almost everyone involved with the ship. It was operated as a conventional vessel. In general, the master had no special instructions; and although the ship's management knew that fires and leaks were occurring, it did not keep itself fully informed or attempt to determine the cause. Speaking to the whole spectrum of emerging exotic cargoes, the Board in its report stated: "It is concluded that operating companies involved with such cargoes should thoroughly familiarize themselves with all the related problems and dangers involved, should if necessary seek outside expert advice, and should actively instruct and guide the master in all aspects of handling the cargo and associated problems."

TOWING VESSELS

During fiscal year 1964, towing vessels were involved in a total of 547 marine casualties resulting in the loss of 43 lives. There were 6 cases of foundering or capsizing with the loss of 15 lives. Let's examine three of these cases.

MEITOWAX. The uninspected harbor tug *Meitowax* disappeared off the east coast with the loss of four lives. The tug was built in 1927 and owned and operated by a railroad company in the New York harbor area until 1963 when it was sold. There is no known record that the vessel was ever inclined or its stability otherwise determined. At the time the vessel was lost it was en route from New York to Charleston, S.C. without a tow. Although the principal cause for the loss of the vessel must be attributed to the severe weather conditions it encountered, it is probable that the age of the vessel, lack of adequate watertight closures, and lack of stability were contributing factors.

FLUSHING. The uninspected harbor tug *Flushing* sank in the East River at New York with the loss of four lives. The tug was towing a barge astern on two very short towlines. The investigating officer concluded that the tug capsized when the barge took a sheer and a towline fouled under the starboard quarter of the tug causing it to list to port to the point that water entered the hull through the opened deckhouse doors. He further stated that a contributing cause was the slack condition of the fuel and water tanks which reduced the initial stability.



Recovered Life Saving Appliances From Marine Sulphur Queen

JANET C. This 39-foot uninspected towing vessel foundered in West Terrebonne Bay, Louisiana, with the loss of two lives during severe weather conditions. The tug was loaded with approximately 12 tons of bagged cargo on deck which was to be delivered to a drilling rig. The investigating officer concluded that the tug sank as the result of severe weather conditions; with its deeply loaded condition and the failure to close weathertight deck doors and ports being major contributing factors.

Another significant casualty involving a towing vessel was the collision of the tug *Rebel Jr.* and tow with the Lake Pontchartrain Causeway in Louisiana. The collision destroyed two sections of the causeway; and a bus plunged through the opening into the lake immediately after the collision. The lives of six persons in the bus were lost.

Evidence obtained during the investigation revealed that the operator of the towing vessel, on watch alone in the middle of the night, lost consciousness; and the flotilla veered from its intended course and crashed into the bridge. The master and mate of the tug had been operating the vessel almost continuously for 16 days on a 24-hour per day basis. For the first 4 or 5 days they were assisted

by two deckhands. For the next 4 or 5 days they were without help; and during the latter part of the period they had the help of one deckhand.

In acting on the investigating officer's report the Commandant stated: "The cause of the casualty was the failure of the mate, Clifford Miley, to keep the flotilla under control. While the conclusion of the investigating officer that Miley "blacked out" is supported fully by evidence in the record, including the doctor's testimony, it is not the only possibility. Another possibility is the conclusion that Miley fell asleep at his post. The doctor's testimony as to Miley's probable condition at the time of his possible "black out," also indicates a low resistance to fatigue; after working for some 8 or 9 hours, it is conceivable that Miley, on watch alone, on a routine run, fell asleep and, after the collision appeared "dazed" for a brief period.

"Concurring with the investigating officer, there is no Federal statute which specifically defines standards of manning or limits the working hours for crewmembers of uninspected towing vessels. However, the record of the investigation contains evidence that the manning of the *Rebel Jr.* was so inadequate and the working hours

of the crew so unreasonable, when compared with the standards required on inspected vessels, that a reasonable conclusion can be made that the tug could not be operated with safety on a prolonged 24-hour per day basis.

"Under the circumstances and conditions described in the report of investigation it is considered that minimum manning and working standards would have required two men on watch on deck at all times while the vessel was underway and that the regular working hours for crewmembers would not exceed 12 hours during any 24-hour period. Had the *Rebel Jr.* been operated in accordance with these minimum standards, this casualty might not have occurred since: (1) the mate on watch would have had adequate rest and probably would not have "blacked out" or fallen asleep, and (2) an additional man on deck should have been able to detect the dangerous situation developing in sufficient time that remedial action could have been taken.

"The owner and master of the tug *Rebel Jr.* are considered to be responsible for providing adequate manning and for requiring reasonable working hours of the vessel's crewmembers."

¹ This statistical summary together with ancillary findings will appear in the next issue of the "Proceedings," January 1965.

² See the "Proceedings" of July 1964 for the Commandant's Action on the Marine Sulphur Queen Marine Board of Investigation.



Lost Tug

IMCO Revisited

CDR L. W. Goddu, Jr.



IN 1961, an article in the *Proceedings* described an international organization dedicated to maritime safety, called the Intergovernmental Maritime Consultative Organization—or as it is probably better known: IMCO. This prior article,¹ among other information, told of the work and organization of IMCO. Much has been accomplished since that 1961 exposure and it is felt a need exists to restate the purpose of IMCO and update that prior information in light of developments of the past several years.

FOUNDING; PURPOSE REVIEWED

In 1948, an international convention calling for the organization of IMCO was drawn up and opened for signature at a United Nations conference in Geneva. By 1958 sufficient maritime nations had ratified the convention to make IMCO's establishment a reality.

The purpose of IMCO is to promote the achievement of the highest practicable standards of maritime safety and efficient navigation by facilitating cooperation among governments in a broad area of technical matters affecting shipping. It also discourages discriminatory, unfair, and restrictive practices affecting ships in international trade, so as to promote the freest possible availability of shipping services to meet the needs of the world for oversea transport. IMCO advises other international bodies on shipping activities, including agencies of the United Nations, and coordinates its work with that of other United Nations agencies dealing with labor questions, telecommunications, meteorology, oceanography, aviation, atomic energy, and health.

The functions of IMCO are consultative and advisory. In addition to providing machinery for consultation and exchange of information between governments on shipping matters, it is responsible for convening international conferences when necessary, and for drafting international conventions or agreements on shipping questions. It may consider and make recommendations upon any maritime subject submitted by its member states, by an organ of the United Nations family, or by any other intergovernmental body.

INTERNATIONAL CONVENTIONS ADMINISTRATION

IMCO has the responsibility to administer the International Conven-

tions on the Safety of Life at Sea, 1948 and 1960; the International Regulations for Preventing Collisions at Sea, 1948 and 1960; the International Convention for the Prevention of Pollution of the Sea by Oil, 1954, and the International Code of Signals. The 1960 Conventions will come into force within the next year.

The International Convention on Safety of Life at Sea, 1948, commonly called SOLAS 48, was only the third such international convention. Prior SOLAS Conventions in 1914 and 1929 had established minimum standards for subdivision, lifeboat and life-saving appliances; required the use of radio; established the International Ice Patrol and recommended the use of fixed routes in the North Atlantic. The principal additions of the 1948 Convention were provisions for stability, subdivision and structural fire protection. This Convention also laid the groundwork for international standards for cargo and tank vessels. On international voyages, each such vessel is now required to have a valid Safety Equipment Certificate issued by the country in which it is registered.

The International Convention on Safety of Life at Sea, 1960, or SOLAS 60, made a number of substantive improvements to the 1948 Convention. For passenger vessels, the subdivision and stability requirements have been strengthened and to some extent strengthened, too, were the structural fire protection and firefighting equipment requirements. For cargo vessels, the concept of structural fire protection was introduced and firefighting equipment requirements were augmented. Certain inflatable lifesaving equipment was accepted, and the machinery and electrical requirements, particularly those relating to steering, were amplified. A major addition was that of a new chapter on nuclear powered vessels which lays out broad principles covering their construction, operation, and certification. This chapter also provides a procedure whereby nations may evaluate the safety of a foreign nuclear vessel before permitting it to enter its ports.

In addition to the Convention, the Conference adopted 56 recommendations on subjects directly connected with maritime safety. Most of these recommendations have been or will

be studied by IMCO so that the latest developments in maritime safety may be continuously under scrutiny, for the purpose of securing the highest practicable standards of maritime safety and efficient navigation.

The International Regulations for Preventing Collisions at Sea, 1960,² update the existing regulations changing a few definitions and lights to better identify approaching dangers and special circumstances. The most significant change concerns conduct in restricted visibility. A new rule was adopted to provide for safe navigation by a vessel which detects another vessel outside of visual or audible range. Though not mentioning radar specifically, this rule, and the Annex entitled "Recommendations on the Use of Radar Information as an Aid To Avoiding Collisions at Sea," resolves several important questions which presently exist concerning a vessel navigating with the aid of radar.

SOLAS 60 and the International Regulations for Preventing Collisions at Sea, 1960, are not presently in effect. SOLAS 60 will become effective on 26 May 1965,³ 1 year from the date on which a requisite number of nations deposited their instruments of acceptance with IMCO. The International Regulations for Preventing Collisions at Sea, 1960, will become effective on 1 September 1965 which, again, is 1 year from the date on which instruments of acceptances were deposited with IMCO from a predetermined number of member states.

Earlier conventions, unfortunately, contained no usable machinery with which to make amendments. Consequently, when a particular convention became outdated or inadequate, a new international conference would have to be called to draft a new convention. In the case of the SOLAS Conventions, new conferences had to be called in 1929, 1948 and again in 1960. Inasmuch as there is generally a lapse of from 6 to 10 or more years between the preliminary maneuvers leading up to the calling of a new conference and the final coming into effect of the new convention, it is easy to see that this procedure was far from satisfactory. It is hoped that IMCO will be able to expedite matters in the future.

² See *Proceedings*, October 1964.

³ See *Proceedings*, September 1964.

¹ See *Proceedings*, July 1961.

IMCO MAKEUP

IMCO is a specialized organization under the auspices of the United Nations, and resembles the United Nations in its general setup. It is composed of four bodies, the Assembly, the Council, the Maritime Safety Committee, and the Secretariat. (See organizational chart page 211.)

The Assembly is the main body of IMCO which must approve any action to be taken by the Organization. All member states, both large and small, and regardless of the size of their merchant fleet or of the amount of their interest in shipping matters, have an equal vote in the Assembly. The Assembly regularly meets once every 2 years.

The Council is concerned primarily with other than technical matters and acts for the Assembly when the latter is not meeting. There are 16 member nations represented on the Council, elections being held every 2 years. The nations are chosen as being those contributing the most to and having the most interest in international shipping. At an extraordinary session in September 1964, the Assembly initiated steps to increase the membership from 16 to 18. This increase will become effective 1 year after it is accepted by two-thirds of the member governments. The Council meets at least once a year.

The Maritime Safety Committee is the workhorse of the Organization, handling all matters of a technical nature. Regular meetings of the Committee are held at least once a year. There are a number of subcommittees and working groups under the Maritime Safety Committee which may meet more often or may even be continually engaged. There are 14 member countries of the Maritime Safety Committee who are elected by the Assembly for a term of 4 years. The first eight represent the nations having the largest shipping tonnage and the remaining six are elected as the ones having the greatest interest in shipping.

The continuing body of IMCO, the Secretariat, consists of a group of international civil servants who service the organization under the direction of the Secretary General. This is the office staff which keeps the organization going on a daily basis and arranges for the various meetings, and prepares the agenda and necessary working documents. The Secretariat may also be involved in special studies when so directed by one of the other bodies of the Organization.

The majority of the real work of the Organization is accomplished by the Maritime Safety Committee and

the Council. However, any final action must be approved by the Assembly where all member countries have a voice in the proceedings.

To assist in its technical responsibilities, IMCO has established many subcommittees in such areas as subdivision, stability, tonnage, carriage of dangerous goods, safety at sea and in the air, fire protection, carriage of bulk cargoes, oil pollution, facilitation of travel and transport, and code of signals.

IMCO derives its authority from its member states which have ratified the Convention and it can only make progress by agreement among those members. The work of its principal organs—the Assembly, the Council, the Maritime Safety Committee, and the Secretariat—will often touch upon the work of other agencies in the United Nations family. IMCO, therefore, maintains close contact with them, working on projects of mutual concern. A formal agreement exists with the United Nations. IMCO also has a formal agreement with the International Labor Organization which has a particular interest in the em-

ABOUT THE AUTHOR



CDR GODDU attended Tufts Engineering College before entering the U.S. Coast Guard Academy in June 1942.

Graduated in 1946, he subsequently saw duty aboard the Cutters: CAMPBELL, YAKUTAT, BIBB, and DUANE.

He also served at the Marine Inspection Office in Baltimore, Maryland, as an engineering inspector.

He was assigned as Officer in Charge, Marine Inspection, Wilmington, N.C., and as Captain of the Port, Wilmington in June 1959 where he served until September 1963 when he assumed his present duties as Assistant Chief, International Maritime Safety Coordinating Staff, Coast Guard Headquarters, Washington, D.C.

ployment conditions of seamen everywhere. Another body with which IMCO has an agreement is the International Atomic Energy Agency whose program of work includes such items of interest as the application of atomic reactors to ship propulsion and the disposal of radioactive wastes from nuclear powered ships.

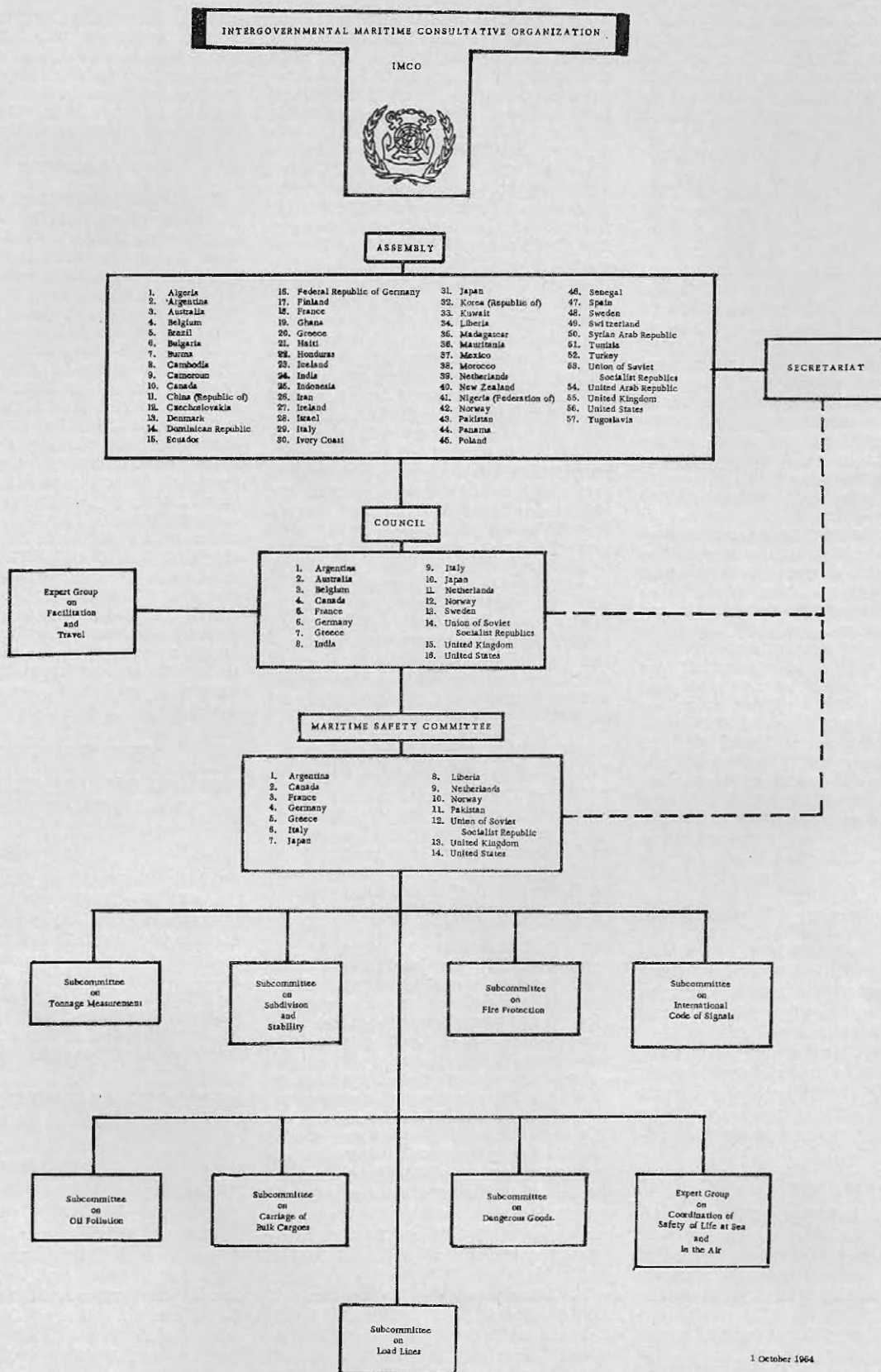
U.S. PARTICIPATION

As IMCO matters are of an international character, all official contacts between IMCO and the United States must be made through the Department of State. To handle these problems the Department of State has established a special interdepartmental committee called the Shipping Coordinating Committee of which the Coast Guard is a member. Standing subcommittees have been established under this Committee to handle different types of problems. One such group is the SOLAS Subcommittee, chaired by the Coast Guard, which handles technical IMCO matters relating to maritime safety. This subcommittee is composed of Government agencies, including the Coast Guard, and representative industry groups with general interest in such matters.

Although the Department of State has the prime responsibility to establish U.S. positions to these problems, it looks to the U.S. Coast Guard as the agency having the trained personnel and technical knowledge of maritime safety activities to enable effective U.S. participation in and implementation of international agreements in this specialized field. The Coast Guard is represented at most meetings of the IMCO bodies. It heads the U.S. delegation to the Maritime Safety Committee and furnishes representatives to many of the IMCO subcommittees.

To coordinate the ever-increasing problems of international maritime safety, the Coast Guard has established, under the Office of Merchant Marine Safety, the International Maritime Safety Coordinating Staff. This staff maintains liaison with IMCO through the Department of State. It keeps cognizant Coast Guard divisions and industry groups apprised of matters of interest to them and coordinates action on all matters of interest to the Coast Guard.

The various interested Government agencies and industry groups have uniformly supported the need for merchant marine safety regulation. The United States has the highest standards in the world. The Department of State has highlighted the U.S. policy which has favored high



international maritime safety standards. To protect American citizens traveling on foreign vessels, the United States has encouraged other governments to make their safety standards more nearly approach those of our country. This we can only attain through active participation in IMCO.

MARITIME SAFETY

In the early days of IMCO there were many doubts as to the success of the venture. The procedural functions seemed too cumbersome. These doubts appeared to be justified for a short time, as little in the nature of concrete achievements were produced in the first few years. However, now that early organizational difficulties have passed, IMCO is able to concentrate on the more substantive problems. Accordingly, we hope to see accomplishments in the near future which would have been just about impossible to achieve in the pre-IMCO era.

An example of this recent accomplishment would be in the area of the Tonnage Admeasurement System. For many years, complaints have arisen because of the system. It has been pointed out that the system is unrealistic and forces an owner to relinquish safety in design if he wishes to keep his tonnage low and thus minimize costs. This matter has been under study by an IMCO Subcommittee for some time. At the Third Assembly, a first step was taken by adopting the subcommittee's proposal which would permit the closure of tonnage openings without affecting the existing gross and net tonnage of the vessel. This has been recommended to the governments for adoption.

Another study which has recently been undertaken by IMCO relates to subdivision and stability. The U.S. Delegation to the 1960 SOLAS Convention was not satisfied with the subdivision and stability requirements finally adopted for the Convention. Consequently, this country has been instrumental in having the subject reopened by IMCO with the overall aim that a realistic approach will be taken to subdivision and stability requirements.

LESSENING PAPER WORK

In 1962 at their Second Session, the Assembly of IMCO adopted the U.S. proposal to look into the possibility of simplifying and reducing the number of documents required of ships entering or leaving port and, if possible, to recommend steps to be taken by member governments and IMCO to facilitate maritime transport.

In November of that year, an IMCO Expert Group on Facilitation of Travel and Transport held their first meeting. Working with three subgroups on customs, immigration and health, the Expert Group had made sufficient progress so that at the Organization's Third Assembly, acting on a proposal submitted by the United States, it was agreed to sponsor and convene an International Conference in 1965 to prepare a Convention on the Facilitation of Travel and Transport. A draft Convention has now been submitted to all member governments for comment. This draft convention will serve as the basic working document for the Conference.

The United States has been very active in this field, having established a National Facilitation Committee and several subcommittees. This committee has not only dealt with the proposals and formation of the draft convention but has also developed a proposal for a new master format for export documents. This new format is now being circulated to all concerned for comment. If put into use in its final form the new format will constitute a major breakthrough in the reduction of paperwork requirements for export shipping. This together with a new International Convention will inaugurate a new era in maritime trade providing a more expeditious movement of passengers and cargo.

OIL POLLUTION

As a result of the 1954 and 1962 Oil Pollution Conferences, several duties were imposed upon IMCO. Many of these are in the nature of collecting and disseminating material which can be handled by the Secretariat. In fact, results of inquiries to governments regarding the existence and adequacy of facilities for the reception of oily residues in ports, education, manuals, national committees, etc., have been collected, published, and distributed by the Secretariat. However, Resolution 13 of the 1962 Conference states that a panel of technical experts should be established on whom the Organization could call for advice on these matters.

With this resolution in mind, the Maritime Safety Committee at its Eighth Session agreed to establish a Subcommittee on Oil Pollution, consisting of interested member governments, to deal with the practical measures to combat and further diminish the menace of pollution of the sea by oil.

For some considerable time now the United States has had a National Committee for Prevention of Pollution of the Seas by Oil and an Oil Pollution Panel of the Merchant Ma-

rine Council of the Coast Guard. The former comprises interested government agencies and the latter interested marine industry groups. These groups have made valuable contributions in establishing U.S. positions for prior international conferences.

CONCLUSION

It may be wondered why the United States and the Coast Guard are so interested in IMCO. Whether we like it or not, we are involved in shipping matters on an international plane. The United States is in on the ground floor by having membership in IMCO not only on the Assembly, but on the Council and the Maritime Safety Committee as well. This is our opportunity to assure the actions taken at IMCO are in our best interests.

The work of the Intergovernmental Maritime Consultative Organization is now well underway. Over the next few years its program will gain added momentum as its influence is increasingly felt. The value of cooperation is already well recognized in shipping circles and IMCO will have ample scope to increase and strengthen the opportunities for common effort. To the extent that this cooperation succeeds, IMCO will bring benefits not only to the maritime nations, but also to international trade generally and thus to the whole world.

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 7-64

September 8, 1964.

Subject: Renewal of Operators' Licenses—Great Lakes.

EDITOR'S NOTE.—Due to space limitations the text of this circular and enclosures thereto are not reprinted here. The purpose of this circular is to inform all licensed operators on waters of the Great Lakes concerning an amplification of the requirements for renewal of licenses.

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 8-64

September 18, 1964.

Subject: Renewal of Operators' Licenses—Western Rivers.

EDITOR'S NOTE.—Due to space limitations the text of this circular and enclosures thereto are not reprinted here. The purpose of this circular is to inform all licensed operators on waters of the Western Rivers concerning an amplification of the requirements for renewal of licenses.

COUNCIL ACTIVITIES

Coast Guard Implementation of Proposed Towboat Legislation Explained to Western Rivers Panel

Current Coast Guard thinking with respect to implementation of any towboat inspection legislation that might be enacted by Congress, such as H.R. 9121 and H.R. 9130 now pending before the Subcommittee on Coast Guard, Coast and Geodetic Survey, and Navigation of the House Merchant Marine and Fisheries Committee was explained at the recent Western Rivers Panel meeting.

The following *brief summary* of the *procedure* which the Coast Guard would intend to follow in *evolving regulations* under the authority of the bill was outlined to the Panel:

1. The Coast Guard personnel directly involved would be: the personnel assigned to the Towing Vessel Study Committee and field inspection personnel with towboat experience—including those who had undergone the industry training program.

2. The Coast Guard personnel would draft preliminary proposed regulations utilizing their experience and practical knowledge of towing vessels in conjunction with knowledge of appropriate existing regulations in 46 CFR.

3. Full and complete consultation with representatives of all interested parties—owners, operators, operating personnel, repair facilities—would be undertaken during the initial drafting stage (by field trips by Coast Guard personnel, regional meetings, use of the Western Rivers Panel, and perhaps by special advisory committee to be set up by the Commandant).

4. It is anticipated that the proposed draft of regulations would then be disseminated to the interested parties initially contacted for comment. After comments are received, the specific feasible regulation proposals would be published in the Public Hearing Agenda for full circulation to the public for further comments.

5. Following the Public Hearing and incorporation of appropriate comments, the proposed regulations wherever possible would be approved and published with an effective date 6 months after date of publication as stated in the bill.

It is intended that the regulations as finally published will permit the continued operation of existing vessels and the continued employment of personnel presently employed in the industry, provided that minimal safety standards are achieved. As with Public Law 519 covering the in-

spection of small passenger vessels and implementing regulations in 46 CFR Subchapter T, it is proposed to permit wide discretion to local Officers in Charge of Marine Inspection in certain areas of inspection of existing vessels and licensing of personnel now serving on towing vessels. Local situations and individual cases require evaluation and decision which may have wide variations in minor details.

Regarding the general subject of *manning and the qualifications of personnel of towing vessels*, the Western Rivers Panel was apprised of the following Coast Guard positions:

a. No change is anticipated in the basic two-watch system presently employed on inland rivers. The basic concept is that the Coast Guard will only require manning by the minimum number of personnel considered necessary for the safe navigation of the vessels concerned. In most instances of inland towing vessel operation, it is envisioned that the required deck crew on duty would be one licensed deck officer and one other person on watch on deck, per each watch. Insofar as engineering personnel are concerned, it is felt that a great deal of flexibility will be permitted based on the individual vessel; its route, type of operations, and specifics of the machinery installations, such as pilot-house control, etc.

b. It is anticipated that personnel presently employed on towing vessels who can present satisfactory evidence of operating experience will be able to obtain the appropriate license and/or other qualification certificate without a formal examination, but with some requirement to demonstrate their capability, such as:

1. Deck officers would be required to demonstrate their knowledge of appropriate Rules of the Road.

2. Engineer officers would be required to demonstrate their knowledge of basic safety precautions (machinery, personnel, firefighting).

3. While, at present, other licensed officers are permitted to serve under their licenses as "tankermen," it is assumed these officers will want to qualify for this rating if they do not hold it already.

c. In addition, it is considered that physical requirements for the above personnel would only be informal determinations by the Coast Guard that they have performed their duties satisfactorily regardless of reasonable existing physical defects which they may have.



d. The entire subject of personnel qualification requirements is presently under full study and it is anticipated that, should the Bill become law, this particular phase of regulation promulgation will be the subject of extensive consultation and "give and take" between the representatives of the actual on board personnel, the vessel owners, and the Coast Guard.

UNIFICATION ENDORSED

In other action, the Western Rivers Panel unanimously adopted a proposal to unify the Inland and Western Rivers Rules of the Road.

The proposal differs in relatively minor respects from the Coast Guard proposal to unify the Inland, Western Rivers and Great Lakes Rules of the Road, which will appear in the January 1965 issue of the "Proceedings." The Western Rivers Panel proposal will be studied by the Coast Guard preparatory to future meetings with the Panel's Rules of the Road Committee.

Oil Pollution Panel Recommends on IMCO Subcommittee Membership

The Oil Pollution Panel, advisory to the Merchant Marine Council, has recommended to the Commandant that the United States appoint two industry representatives and one Government representative as members of the IMCO Subcommittee on Oil Pollution. It further recommended that one representative should be nominated from the dry cargo segment of the industry, that one should be nominated from the tank vessel segment of the industry, and that the Government representative should be nominated from the Coast Guard's International Maritime Safety Coordinating Staff. Meetings of this IMCO Subcommittee are to take place in London in 1965.

MERCHANT MARINE PERSONNEL STATISTICS

MERCHANT MARINE OFFICER LICENSES ISSUED

QUARTER ENDING SEPTEMBER 30, 1964

DECK

Grade	Original	Renewal	Grade	Original	Renewal
Master:			3d mate:		
Ocean.....	34	419	Ocean.....	168	92
Coastwise.....	10	41	Coastwise.....		1
Great Lakes.....	2	11	Pilots:		
B.S. & L.....	9	86	Great Lakes.....	4	15
Rivers.....	17	48	B.S. & L.....	60	16
Radio officer licenses issued.....	23	312	Rivers.....	86	37
Chief mate:			Master: Uninspected vessels.....	11	17
Ocean.....	34	91	Mate: Uninspected vessels.....	2	4
Coastwise.....			Motor boat operators.....	280	409
Mate:			Total.....	795	1,739
Great Lakes.....		4			
B.S. & L.....	3	7	Grand Total.....	2,534	
Rivers.....	8	42			
2d mate:					
Ocean.....	44	87			
Coastwise.....					

ENGINEER

Grade	Original	Renewal	Grade	Original	Renewal
STEAM			Chief engineer—Continued		
Chief engineer:			Limited.....	34	96
Unlimited.....	38	414	1st assistant engineer:		
Limited.....	2	53	Unlimited.....	3	6
1st assistant engineer:			Limited.....	16	21
Unlimited.....	36	163	2d assistant engineer:		
Limited.....	1	8	Unlimited.....	10	7
2d assistant engineer:			Limited.....	2	3
Unlimited.....	57	238	3d assistant engineer:		
Limited.....	2	3	Unlimited.....	164	173
3d assistant engineer:			Limited.....		4
Unlimited.....	200	277	Chief engineer: Uninspected		
Limited.....			Vessels.....	11	11
MOTOR			Assistant engineer: Unin-		
Chief engineer:			spected Vessels.....	6	2
Unlimited.....	3	72	Total.....	585	1,551
			Grand total.....	2,136	

MERCHANT SEAMEN'S DOCUMENTS ISSUED

Type of Document	Atlantic coast	Gulf coast	Pacific coast	Great Lakes and Rivers	Total
Staff officer.....	31	10	36	4	81
Continuous discharge book.....	223	8	13		244
Merchant mariner's documents.....	1,709	736	1,050	1,119	4,614
AB any waters unlimited.....	121	69	89	31	310
AB any waters, 12 months.....	92	49	40	44	225
AB Great Lakes, 18 months.....	2		8	12	22
AB tugs and tow-boats, any waters.....	9	1	4	6	20
AB bays and sounds.....					0
AB seagoing barges.....	2			1	3
Lifeboatman.....	387	13	97	7	504
QMED.....	346	85	107	73	611
Entry ratings.....	1,673	700	968	1,057	4,398
Tankerman.....	24	79	7	55	165
Total.....	4,619	1,750	2,419	2,409	11,197

INVESTIGATING UNITS

Coast Guard Merchant Marine Investigating Units and Merchant Marine Details

investigated a total of 3,545 casualty cases and 2,389 complaint cases during the third quarter of 1964. During this period 922 licensed and 2,183 unlicensed seamen were subject to investigation and remedial action involving 112 licenses and 542 merchant mariner's documents were completed. In the case of licensed personnel 3 licenses were revoked, 3 suspended outright, 12 suspended outright plus an additional suspension on probation, 17 suspended on probation, 5 cases were closed with an admonition and 58 warnings were issued. Thirteen cases were dismissed after a hearing. One voluntarily surrendered in lieu of hearing. Of the unlicensed personnel, 14 merchant mariner's documents were revoked, 12 suspended outright, 59 suspended outright plus an additional suspension on probation, 89 suspended on probation, 13 cases were closed with an admonition and 317 warnings were issued. Twenty-one cases were dismissed after a hearing. Seventeen voluntarily surrendered in lieu of hearing. Nine licenses and 193 documents were voluntarily deposited due to temporary unfitness for sea duty and 7 licenses and 105 documents returned upon a finding of fit for duty.

Killer:

SLIP AND FALL

The Chief Mate of a vessel died recently after falling into a hold from a vertical ladder. The cause of the accident has been attributed to the rubber boots which he was wearing at the time.

After supervising a work crew in washing down the deck, the mate made preparations for the crew to enter the hold in order to wash it down prior to loading a cargo of grain. During this preparatory work, he went to his cabin and put on a pair of hip boots which were turned down to the knee. He returned across the wet deck, and was the first person to descend into the hold. The members of the crew, who subsequently followed, found him lying in the hold at the foot of the ladder.

The exact cause of the accident will never be determined; lacking an eye-witness to the fall, the cause can only be surmised from the circumstantial evidence:

1. The victim was in apparent good health immediately prior to the accident.

2. The ladder from which he fell was apparently void of defects.

3. Hip boots are more bulky and cumbersome than work shoes; hip boots turned down are still more cumbersome, thereby increasing the tripping possibility; and wet soles of rubber boots are prone to slip on smooth steel surfaces.

Contributor: RUBBER BOOTS

Killer:

TOXIC FUMES

In haste to begin shore leave as soon as possible, a carpenter and seaman on an American ship, ignoring the advice of the First Assistant Engineer, went into a hold to remove the plates blanking the intake and exhaust of a ventilation system to a deep tank. The tank contained a volatile liquid chemical which was being discharged. The ship was in port, and the crew frequently ashore. The two men were not missed for 3 days. Some of the crew finally became concerned with their continued absence, and a search was commenced. The bodies of the two seamen were eventually found beside the openings of a tank which had contained this toxic cargo. It is imperative that men be closely supervised when performing duties involving dangerous and exotic cargoes.

Contributor: INSUFFICIENT SUPERVISION



MARITIME SIDELIGHTS

MARAD HONORS M/V YACONA RESCUERS



M/V YACONA COMMENDATION CEREMONY. Left to right—Capt. J. F. Thompson, USCG, Acting OCMI, Philadelphia; Mr. W. C. Brodhead, Gen'l Manager, Gulf Oil Marine Department; Capt. J. W. Forrest, Master m/v Yacona; Mr. C. J. G. Wentz, Special Assistant to the Atlantic Coast Director U.S. Marine Administration; Mr. Max R. Barrow, crewmember; Mr. H. Glenn Burroughs, Crewmember; Commander J. Haynes, USCG; and Mr. James J. McAllister, Crewmember.

The master, the mate, and five crewmen of the M/V *Yacona*, a coastal tanker of the Gulf Oil Corp., have been honored by the Maritime Administration, for rescuing three crewmen of the fishing vessel *Rose Marie* in Chesapeake Bay.

The incident occurred December 12, 1960.

James W. Forrest, of Diggs, Va., master of the *Yacona*, which is on a Norfolk to Philadelphia run, received a letter of commendation for his part in the rescue.

Receiving Meritorious Service Medals were Edward C. Ketner, Jr., of Weems, Va., the mate; Thomas J. Linton, of South Norfolk, Va., a seaman; H. Glenn Burroughs, of Foster, Va., pumpman; Herbert A. Dehnert, of New Point, Va., oiler; Max R. Barrow, of Portsmouth, Va., oiler; and James J. McAllister, of Philadelphia, engine maintenance man.

According to the citation, the incident occurred in the early morning of December 12, 1960, during a heavy snow storm. The *Yacona*, bound for Philadelphia from Washington, D.C., sighted the wreckage of the *Rose Marie*, a fishing boat out of Annapolis, and four men were sighted in the water, which was described as "freezing."

A general alarm was sounded, the Coast Guard was notified, and the rescue operation began. The rescuers had to contend with "strong winds, heavy seas, and visibility limited due to an extremely heavy snowfall" in maneuvering the *Yacona* into a position close to the *Rose Marie's* crew, where a boat was launched.

Three of the four men were picked up within a half hour. They were semiconscious when brought aboard the tanker, because of their long exposure in the icy water. Two of the

men responded, but the third one died. A protracted search failed to locate the fourth man, and he was assumed lost at sea.

The survivors were later transferred to a Coast Guard cutter, which brought them to shore.

Ketner was in charge of the boat crew, which consisted of the five seamen.

The presentation was made at a ceremony in Philadelphia in September 1964 by C. J. G. Wentz, Chief of Maritime's Atlantic Coast District Office of Ship Operations and Government Aid, on behalf of Maritime Administrator Nicholas Johnson.

Eight Gulf Oil executives attended the ceremony, as did representatives of the U.S. Bureau of Customs, and the U.S. Coast Guard.

BRIDGE TO BRIDGE VOICE COMMUNICATIONS SYSTEM COMES TO LOWER MISSISSIPPI

The lower Mississippi is now numbered among those ever-increasing congested areas where direct bridge-to-bridge voice communication is utilized as a piloting aid. The FCC has assigned 156.65 mcs as the navigational channel to be used by the "walkie-talkie"—carrying—pilots aboard deep sea vessels navigating the Mississippi River-Gulf Outlet. Plans call for expanding the program to other vessels in the near future.

JAPAN CONFERS ON NUCLEAR CONSTRUCTION

A group of Japanese nuclear scientists, engineers, and shipbuilding officials recently conferred with the Atomic Energy Commission-Maritime Administration Joint Group on the Nuclear ship *Savannah*, the world's first nuclear powered merchant ship.

Discussed were technical problems concerning the building of nuclear ships, with particular reference to precautions taken on the NS *Savannah* to assure safety of the nuclear reactor. Japan is planning to construct a nuclear ship in the near future.

1960 AND 1948 INTERNATIONAL RULES COMPARED: REVISIONS OF RULES 2 AND 3 EXPLAINED

This second article of a series continues the comparison of the 1948 International Rules of the Road presently in use with the revised 1960 International Rules which will become effective on 1 September 1965.

In the following presentation, the 1960 Rule appears in standard roman

type unless it represents a substantial revision of the 1948 Rule. A 1960 Rule substantially revising a 1948 Rule is printed in boldface type immediately followed by the superseded 1948 Rule. A resume of primary changes follows the rule presentation.

PART B.—LIGHT AND SHAPES

RULE 2

1960 INTERNATIONAL RULES

(a) A power-driven vessel when underway shall carry:

(i) On or in front of the foremast, or if a vessel without a foremast then in the forepart of the vessel, a white light so constructed as to show an unbroken light over an arc of the horizon of 225° (20 points of the compass), so fixed as to show the light $112\frac{1}{2}^{\circ}$ (10 points) on each side of the vessel, that is, from right ahead to $22\frac{1}{2}^{\circ}$ (2 points) abaft the beam on either side, and of such a character as to be visible at a distance of at least 5 miles.

(Unchanged from 1948 Rule)

(ii) Either forward or abaft the white light prescribed in subsection (i) a second white light similar in construction and character to that light. Vessels of less than 150 feet in length shall not be required to carry this second white light but may do so.

Changed, 1948 Rule read:

(ii) Either forward of or abaft the white light mentioned in subsection (i) a second white light similar in construction and character to that light. Vessels of less than 150 feet in length, and vessels engaged in towing shall not be required to carry this second white light but may do so.

(iii) These two white lights shall be so placed in a line with and over the keel that one shall be at least 15 feet higher than the other and in such a position that the forward light shall always be shown lower than the after one. The horizontal distance between the two white lights shall be at least three times the vertical distance. The lower of these two white lights or, if only one is carried, then that light, shall be placed at a height above the hull of not less than 20 feet, and, if the breadth of the vessel exceeds 20 feet, then at a height above the hull not less than such breadth, so however that the light

need not be placed at a greater height above the hull than 40 feet. In all circumstances the light or lights, as the case may be, shall be so placed as to be clear of and above all other lights and obstructing superstructures.

(Unchanged from 1948 Rule)

(iv) On the starboard side a green light so constructed as to show an unbroken light over an arc of the horizon of $112\frac{1}{2}^{\circ}$ (10 points of the compass), so fixed as to show the light from right to $22\frac{1}{2}^{\circ}$ (2 points) abaft the beam on the starboard side, and of such a character as to be visible at a distance of at least 2 miles.

(Unchanged from 1948 Rule)

(v) On the portside a red light so constructed as to show an unbroken light over an arc of the horizon of $112\frac{1}{2}^{\circ}$ (10 points of the compass), so fixed as to show the light from right ahead to $22\frac{1}{2}^{\circ}$ (2 points) abaft the beam on the portside, and of such a character as to be visible at a distance of at least 2 miles.

(Unchanged from 1948 Rule)

(vi) The said green and red sidelights shall be fitted with inboard screens projecting at least 3 feet forward from the light, so as to prevent these lights from being seen across the bows.

(Unchanged from 1948 Rule)

(b) A seaplane underway on the water shall carry:

(i) In the forepart amidships where it can best be seen a white light, so constructed as to show an unbroken light over an arc of the horizon of 220° of the compass, so fixed as to show the light 110° on each side of the seaplane, namely, from right ahead to 20° abaft the beam on either side, and of such a character as to be visible at a distance of at least 3 miles.

(Unchanged from 1948 Rule)

(ii) On the right or starboard wing tip a green light, so constructed as to show an unbroken light over an arc of the horizon of 110° of the compass, so fixed as to show the light from right ahead to 20° abaft the beam on the starboard side, and of such a character as to be visible at a

distance of at least 2 miles.

(Unchanged from 1948 Rule)

(iii) On the left or port wing tip a red light, so constructed as to show an unbroken light over an arc of the horizon of 110° of the compass, so fixed as to show the light from right ahead to 20° abaft the beam on the portside, and of such a character as to be visible at a distance of at least 2 miles.

(Unchanged from 1948 Rule)

PRIMARY CHANGES

1. "Degrees" are now used to describe the required light arcs with the corresponding "points" shown in parentheses and the term "white light" replaces "bright white light."

2. Reference to "vessels engaged in towing" has been removed from Rule 2(a)(ii). As a result of this and a similar deletion from 3(b), a central range of white lights for vessels engaged in towing is required if the towing vessel is 150 feet and over in length and is permissive if such vessel is less than 150 feet in length.

RULE 3

1960 INTERNATIONAL RULES

(a) A power-driven vessel when towing or pushing another vessel or seaplane shall, in addition to her sidelights, carry two white lights in a vertical line one over the other, not less than 6 feet apart, and when towing and the length of the tow, measuring from the stern of the towing vessel to the stern of the last vessel towed, exceeds 600 feet, shall carry three white lights in a vertical line one over the other, so that the upper and lower lights shall be the same distance from, and not less than 6 feet above or below, the middle light. Each of these lights shall be of the same construction and character and one of them shall be carried in the same position as the white light prescribed in rule 2(a)(i). None of these lights shall be carried at a height of less than 14 feet above the hull. In a vessel with a single mast, such lights may be carried on the mast.

Changed, 1948 Rule read:

(a) A power-driven vessel when towing or pushing another vessel or seaplane shall, in addition to her sidelights, carry two bright white lights in a vertical line one over the other, not less than 6 feet apart, and when towing more than one vessel shall carry an additional bright white light 6 feet above or below such lights, if the length of the tow, measuring from the stern of the towing vessel to the stern of the last vessel or seaplane towed, exceeds 600 feet. Each of these lights

shall be of the same construction and character and one of them shall be carried in the same position as the white light mentioned in Rule 2(a)(i), except the additional light, which shall be carried at a height of not less than 14 feet above the hull. In a vessel with a single mast, such lights may be carried on the mast.

(b) The towing vessel shall also show either the stern light prescribed in rule 10 or in lieu of that light a small white light abaft the funnel or aftermast for the tow to steer by, but such light shall not be visible forward of the beam.

Changed, 1948 Rule read:

(b) The towing vessel shall also show either the stern light specified in Rule 10 or in lieu of that light a small white light abaft the funnel or aftermast for the tow to steer by, but such light shall not be visible forward of the beam. The carriage of the white light specified in Rule 2(a)(ii) is optional.

(c) Between sunrise and sunset a power-driven vessel engaged in towing, if the length of tow exceeds 600 feet, shall carry, where it can best be seen, a black diamond shape at least 2 feet in diameter.

(New. No 1948 counterpart)

(d) A seaplane on the water, when towing one or more seaplanes or vessels, shall carry the lights prescribed in rule 2(b)(i), (ii) and (iii); and, in addition, she shall carry a second white light of the same construction and character as the white light prescribed in rule 2(b)(i), and in a vertical line at least 6 feet above or below such light.

(Same as (c) of 1948 rules)

PRIMARY CHANGES

1. The number of white "towing" lights required when towing (meaning towing astern) is based on the length of the tow only, rather than on both length of the tow and number of vessels towed. In any event, only two white "towing" lights are required when pushing a vessel or seaplane.

2. Since reference to an optional central range of white lights for vessels engaged in towing has been deleted from rule 2(a)(ii) and 3(b), such a central range is now required if the towing vessel is 150 feet and over in length and is permissive if such vessel is less than 150 feet in length.

3. During daylight hours, a vessel towing is required to show a day shape if the tow is over 600 feet in length. Further, if the tow exceeds this length, Rule 5 requires that the vessel towed carry the same day shape. This provision only applies to towing and not to pushing ahead.

AMENDMENTS TO REGULATIONS

[EDITOR'S NOTE.—The following regulations have been promulgated or amended since the last issue of the PROCEEDINGS. A complete text of the regulations may be found in the Federal Register indicated at the end of each article. Copies of the Federal Register containing the material referred to may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402.]

TITLE 46—SHIPPING

PART 43—FOREIGN OR COASTWISE VOYAGE

Basic Minimum Freeboards for Certain United States Vessels

Pursuant to the notice of proposed rule making published in the FEDERAL REGISTER of August 12, 1964 (29 F.R. 11534, 11535), and the letter notice soliciting written comments to be submitted prior to September 11, 1964 (CMC 5991/2; August 12, 1964), one comment recommending changes in 46 CFR 43.15-98(b)(1) and (2) was received from the American Bureau of Shipping, as well as a request that these proposals be made effective as of September 14, 1964, rather than the proposed date of January 1, 1965. These proposals are considered to be advantageous to United States shipping. Since no adverse comments were received and the changes recommended by the American Bureau of Shipping in no way affect the meaning of the proposals but do improve the clarity thereof, the proposals, as revised, are adopted and set forth in this document, and the effective date advanced to September 14, 1964.

(Federal Register of October 27, 1964.)

PRESSURE GAUGES REQUIRED ON STORED PRESSURE DRY CHEMICAL FIRE EXTINGUISHERS

By Commandant's Action of August 28, 1964, dry chemical fire extinguishers manufactured after June 1, 1965, will be required to be equipped with pressure gauges or other indicating devices.

Dry chemical, stored pressure, fire extinguishers without pressure gauges or indicating devices manufactured after June 1, 1965, shall not be labeled with the marine type label described in 46 CFR 162.028-4 nor shall such extinguishers manufactured after June 1, 1965, be carried on board motorboats or other vessels as required equipment.

The use of dry chemical, stored pressure, fire extinguishers not fitted with pressure gauges or indicating devices, manufactured prior to June 1, 1965, may be permitted on motorboats and other vessels in accordance with the applicable regulations in 46 CFR Chapter I so long as such extinguishers are maintained in good and serviceable condition.

Effective June 1, 1965, Title 46 Code of Federal Regulations § 162.028-3(j) is amended by designating the present text of subparagraph (1) and by adding a new subparagraph (2), which reads as follows:

§ 162.028-3 Requirements

(j) Dry chemical type. (1) Every dry chemical type portable fire extinguisher of more than five pounds nominal capacity of charge shall contain dry chemical of the foam compatible type, i.e., dry chemical which has been found to be compatible with mechanical foams used aboard vessels.

(2) Every dry chemical stored pressure type portable fire extinguisher, i.e., one which employs a single chamber for both the dry chemical and expellent gas, shall be fitted with a pressure gauge or device to show visual indication of whether or not the pressure in the chamber is in the operating range.

(F.R. September 9, 1964, and F.R. October 29, 1964.)

TITLE 33—NAVIGATION AND NAVIGABLE WATERS

PART 67—PRIVATE AIDS TO NAVIGATION, OUTER CONTINENTAL SHELF AND WATERS UNDER THE JURISDICTION OF THE UNITED STATES

Sounding of Multiple Fog Signals on Single Structure

Effective on date of publication in the FEDERAL REGISTER.

(Federal Register of October 27, 1964.)

EQUIPMENT APPROVED BY THE COMMANDANT

[EDITOR'S NOTE.—Due to space limitations, it is not possible to publish the documents regarding approvals and terminations of approvals of equipment published in the Federal Registers dated October 21, 1964 (CGFR 64-57), and October 27, 1964 (CGFR 64-61). Copies of these documents may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402.]

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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, 1964 and Supplement dated July 1, 1964 are now available from the Superintendent of Documents, price basic book: \$2.50; supplement: 75 cents.

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 (3-1-63), F.R. 8-20-63, 10-26-63, 6-5-64.
123	Rules and Regulations for Tank Vessels (4-1-64). F.R. 5-16-64, 6-5-64.
129	Proceedings of the Merchant Marine Council (Monthly).
169	Rules of the Road—International—Inland (6-1-62), F.R. 1-18-63, 5-23-63, 5-29-63, 7-6-63, 10-2-63, 12-13-63, 4-30-64.
172	Rules of the Road—Great Lakes (6-1-62). F.R. 8-31-62, 5-11-63, 5-23-63, 5-29-63, 10-2-63, 10-15-63, 4-30-64.
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 (9-1-60).
176	Load Line Regulation (7-1-63). F.R. 4-14-64, 10-27-64.
182	Specimen Examinations for Merchant Marine Engineer Licenses (7-1-63).
184	Rules of the Road—Western Rivers (6-1-62). F.R. 1-18-63, 5-23-63, 5-29-63, 9-25-63, 10-2-63, 10-15-63.
190	Equipment Lists (4-2-62). F.R. 5-17-62, 5-25-62, 7-24-62, 8-4-62, 8-11-62, 9-11-62, 10-4-62, 10-30-62, 11-22-62, 11-24-62, 12-29-62, 1-4-63, 1-8-63, 2-7-63, 2-27-63, 3-20-63, 4-24-63, 6-11-63, 6-15-63, 6-22-63, 6-28-63, 8-10-63, 10-16-63, 11-23-63, 12-3-63, 2-5-64, 2-11-64, 3-12-64, 3-21-64, 3-27-64, 4-29-64, 5-6-64, 5-19-64, 5-26-64, 7-2-64, 7-18-64, 7-28-64, 10-21-64, 10-27-64.
191	Rules and Regulations for Licensing and Certificating of Merchant Marine Personnel (7-1-63). F.R. 9-18-63, 12-13-63, 6-5-64.
200	Marine Investigation Regulations and Suspension and Revocation Proceedings (10-1-63).
220	Specimen Examination Questions for Licenses as Master, Mate, and Pilot of Central Western Rivers Vessels (4-1-57).
227	Laws Governing Marine Inspection (6-1-62).
239	Security of Vessels and Waterfront Facilities (7-1-64).
249	Merchant Marine Council Public Hearing Agenda (Annually).
256	Rules and Regulations for Passenger Vessels (4-1-64). F.R. 6-5-64.
257	Rules and Regulations for Cargo and Miscellaneous Vessels (11-1-62). F.R. 2-1-63, 2-6-63, 3-13-63, 4-4-63, 5-30-63, 8-20-63, 9-6-63, 10-2-63, 10-26-63, 6-5-64.
258	Rules and Regulations for Uninspected Vessels (1-2-64), F.R. 6-5-64, 6-6-64, 9-1-64.
259	Electrical Engineering Regulations (12-1-60). F.R. 9-23-61, 9-30-61, 5-2-62, 9-11-62, 8-20-63, 9-6-63, 6-5-64.
266	Rules and Regulations for Bulk Grain Cargoes (7-1-64).
268	Rules and Regulations for Manning of Vessels (2-1-63).
269	Rules and Regulations for Nautical Schools (5-1-63). F.R. 10-2-63, 6-5-64.
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.
293	Miscellaneous Electrical Equipment List (6-1-64).
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.
323	Rules and Regulations for Small Passenger Vessels (Under 100 Gross Tons) (2-3-64) F.R. 6-5-64.
329	Fire Fighting Manual for Tank Vessels (4-1-58).

CHANGES PUBLISHED DURING OCTOBER 1964

The following have been modified by Federal Register:

CG-190 Federal Register, October 21, 1964.

CG-176, CG-190 and CG 320 Federal Register, October 27, 1964.



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is a
Happier One!