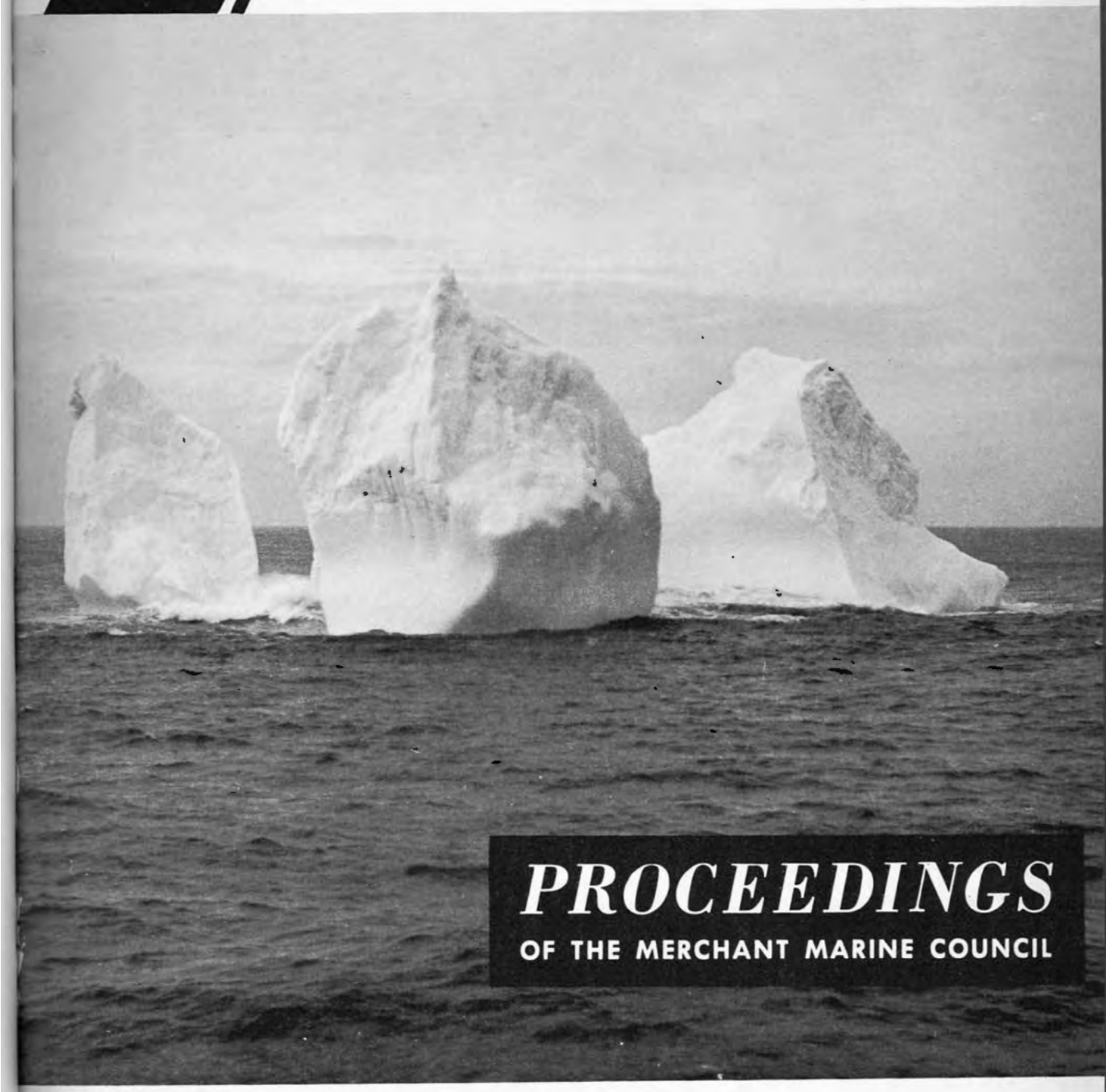
# COAST GUARD



# *PROCEEDINGS*

## OF THE MERCHANT MARINE COUNCIL

Vol. 28, No. 2 CG–129 February 1971

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# PROCEEDINGS

OF THE

MERCHANT MARINE COUNCIL

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## CONTENTS



COVERS

FRONT COVER: Erosion has created the triple pinnacles in this medium sized drydocked iceberg. The International Ice Patrol will soon be on duty to protect mariners from these frozen monsters.

BACK COVER: This crew member was preparing to carry out one of the Coast Guard's past projects in investigating the movement of icebergs. The dye bomb which he dropped from the Ice Patrol plane would leave a bright vermilion stain on the floating ice so that it could be identified later and its course accurately tracked.


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# INTERNATIONAL ICE PATROL 1971

IN FEBRUARY or March 1971, depending upon iceberg conditions, the International Ice Patrol will commence its annual service of guarding the southeastern, southern, and southwestern limits of the regions of icebergs in the vicinity of the Grand Banks of Newfoundland for the purpose of informing passing ships of the extent of this dangerous region. Reports of ice in this area will be collected from passing ships and from flights by Ice Patrol aircraft. Should severe ice conditions be encountered, the Coast Guard will deploy a surface patrol ship to conduct ice observations and to originate special ice broadcasts. Information on ice conditions is provided by the Ice Patrol at 0000 GMT and 1200 GMT each day in an Ice Patrol Bulletin which is sent out by radio and landline circuits.

All shipping is requested to assist in the operation of International Ice Patrol by reporting all sighting of ice at once to COMINTICEPAT via the radio stations listed in the following section. When reporting ice please include the following information:

1. Position of Ice
2. Size of Ice (for icebergs)
3. Concentration of Ice (for sea ice, in eighths)
4. Thickness of Ice (for sea ice, in feet)
5. Other Information Requested for Sea Surface Temperatures

In addition to ice reports, sea surface temperature and weather reports are of importance to the Ice Patrol in predicting the drift and deterioration of ice and in planning aerial patrols. Shipping is urged to make sea surface temperature and weather reports to the Ice Patrol every 6 hours when within latitudes 40 to 50 N. and longitudes 42 to 60 W. Ships with but one radio operator should prepare the reports every 6 hours as requested and hold them for transmission when the radio operator is on watch. When reporting, please include the following:

1. Ship Position
2. Course and Speed
3. Visibility
4. Air and Sea Surface Temperature
5. Wind Direction and Speed

It is not necessary to make the above report if the ship is making routine weather reports to METEO WASHINGTON.

Ice sightings, weather, and sea surface temperature should be reported to COMINTICEPAT through Coast Guard Ocean Station vessels, Coast Guard east coast AMVER Radio Stations, and, if unable to work U.S. Coast Guard Stations, Canadian Coastal Radio St. Johns/VON on the frequencies indicated below. Mer-

## ICEBERG IDENTIFICATION

| SIZE | HEIGHT (In Feet) | LENGTH (In Feet) |
|---|---|---|
| Growler | Less than 4 | Less than 20 |
| Bergy Bit | 4–20 | 20–50 |
| Small Iceberg | 20–50 | 50–200 |
| Medium Iceberg | 50–150 | 200–400 |
| Large Iceberg | 150–255 | 400–700 |
| Very Large Iceberg | More than 255 | More than 700 |

| Shape | Description |
|---|---|
| Blocky | Steep sides with flat top. Very solid. Length-Height ratio less than 5:1. |
| Drydock | Eroded such that a large U-shaped slot is formed with twin columns. Slot extends into or near waterline. |
| Dome | Large round smooth top. Solid type iceberg. |
| Pinnacled | Large central spire(s) or pyramid(s) dominating shape. |
| Tilted-Blocky | Blocky iceberg which has tilted to present a triangular shape from the side. |
| Tabular | Flat topped iceberg with length-height ratio greater than 5:1. |

chant ships calling to transmit Ice Patrol traffic are requested to use the regularly assigned international call sign of the station being called; however, Coast Guard stations will be alert to answer NIK, NIDK, or NJN calls if used.

### Gulf of St. Lawrence

Ice information services for the Gulf of St. Lawrence, as well as the approaches and coastal waters of Newfoundland and Labrador, is provided by the Canadian Department of Transport during the approximate period mid-December to late June. Ships may obtain ice information by contacting Ice Operations Officer, Sydney, Nova Scotia via Sydney Marine Radio (VCO) or Halifax Marine Radio (VCS). Details of the service are available in "Guidance to Merchant Shipping Navigating in Ice in Canadian Waters", published by the Marine Operations Branch, Department of Transport, Ottawa, Canada.

### Search and Rescue

Aircraft and ships assigned to duty with the International Ice Patrol will render assistance to persons and property within the limits of their capability.

### Ice Patrol Office

The International Ice Patrol Office is located at the U.S. Coast Guard Base, Governors Island, New York, N.Y., in Building 110 adjacent to the AMVER Center. Telephone number (Area Code 212) 264-4798 or 264-4799.

### WARNINGS

Shipping is reminded that in spite of the best efforts of the Ice Patrol to prevent such occurrences, icebergs have and will drift unnoticed into the usual shipping routes in the area of

## CALLING AND TRANSMISSION OF TRAFFIC

| Purpose | Frequencies which should be used |
|---|---|
| Calling | 500 kHz (If 500 kHz is being used for distress traffic then 512 kHz may be used as supplementary calling frequency) 2182 kHz (voice)<br>Assigned HF (CW) calling frequencies |
| Transmission of traffic by merchant vessels | Ocean Station Vessels MF (CW), 2 MHz (voice)<br>AMVER Radio Stations MF (CW), 2 MHz (voice), HF (CW) Maritime Mobile<br>Coastal Radio St. John's MF (CW) |
| Transmission of traffic by the following Coast Guard Stations:<br>Ocean Station Vessels 4YB, 4YC, 4YD, 4YE, 4YH<br>AMVER Radio Stations<br>NMF (BOSTON)<br>NMY (NEW YORK)<br>NMN (NORFOLK-PORTSMOUTH) | 466 kHz (CW), 2670 kHz (voice)<br><br>472, 8465 kHz (CW)<br>486, 2670, 12718.5, 17002.4 kHz (CW)<br>466, 2670, 8465 kHz (CW) |
| Transmission of traffic by Canadian Coastal Radio Station St. Johns VON | 478 kHz (CW) |

## BROADCASTS OF THE ICE PATROL BULLETIN

| RADIO STATION | TIME OF BROADCAST (GMT) | FREQUENCIES (kHz) |
|---|---|---|
| *CW Broadcasts* | | |
| Coast Guard Radio Boston/NIK | 0018<br>1218 | 5320, 8502<br>8502, 12750 |
| Coastal Radio St. Johns/VON. | 0000 and 1330 | 478 |
| Maritime Radio Mill Cove/CFH. | 0130 and 1330 | 115.3 (except Tuesday 1330) 133.5 (Tuesday 1330 only) 4356.5, 6449.5, 8662, 12984, 17218.4, 22587. |
| Naval Radio Washington/NSS. | 0430 and 1700 | 88.0 (0430 only), 185.0, 5870, 8090, 12135, 16180. |
| *Voice Broadcasts* | | |
| Coast Guard Radio Boston/NIK. (On U.S. Marine Info. Bost.). | 0130, 0730, 1330, 1930.<br>0200, 0800, 1400, 2000 | 8765.4 (8764.0) USB<br>8764.0 DSB |
| *Radiofacsimile Broadcasts* | | |
| Coast Guard Radio Boston/NIK. | 1600 | 8502, 12750 (drum speed 120). |
| Maritime Radio Mill Cove/CFH. | 0300 and 1500 | 133.15, 4271, 9890, 13510, 17560 (drum speed 120). (Primarily sea ice in Gulf of St. Lawrence and North. Limits of icebergs sometimes given.) |
| *Special Broadcasts* | | |
| Coastal Radio St. Johns/VON. | As required when icebergs are sighted outside the limits of ice between regularly scheduled broadcasts. | Preceded by International Safety Signal (TTT) on 500 kHz. |

the Grand Banks. The positions of icebergs in the Ice Bulletin are updated for drift at 12-hour intervals. However, it is stressed that after about 5 days the positions estimated by drifting are very unreliable. Date of an iceberg sighting is indicated in the Ice Bulletin.

In general, only icebergs south of about 48° N. are included in the Ice Bulletin. In the event there are large numbers of icebergs south of 48° N., the Ice Bulletin will carry the positions of only those icebergs near the limits of ice and isolated icebergs or iceberg groups.

Carefully conducted tests by the Ice Patrol have proven that radar cannot provide positive assurance of iceberg detection. Since sea water is a better reflector of radar signals than ice, an iceberg or growler inside the area of sea return on the radar scope may not be detected. The *average* range of radar detection of a dangerous growler, if detected at all, is only 4 miles. While radar remains a valuable aid for ice detection, its use cannot replace the traditional caution exercised in a passage across the Grand Banks during the ice season. ⚓

# Shipboard Practice Has Safety Value

The Editor notes the following item in a recent issue of *The Marine Fireman.*

"The *Alaska Mail* was in the other day and Chief Engineer Russell put out word to all hands, especially the new men and the inexperienced, if they wished to get acquainted with the plant and various equipment for them to go below. That he would show them how to start up and shutdown the generators, to switch over from auto to manual and vice versa any of the operating machinery, to give everyone the opportunity for an actual experience.

"I recall being on ships that ran so smoothly, that the only one that started up or shut down the plant was the chief or first engineer. When they were not around or on board and the watch below ran into trouble they were lost for getting the plant started again.

"There are also times of emergencies that one wishes he had experienced or took the time and trouble on how to restart or transfer machinery for his own benefit and safety, or even making standing the rest of his watch a lot easier.

"The acquiring of this knowledge and experience does not necessarily violate the agreement nor one's assigned duties. In this era of sophisticated enginerooms and equipment it is a must that one should have knowledge of what he is working with and how best to keep it running.

"Further, if one is concerned about job security, it should start with knowing your job. Chief Engineer Russell's intent is not only to make his job easier but yours also and the making of a smoother running ship. If more chief engineers were to undertake the same procedure as Russell, they would find they will have developed the talent and have a highly skilled crew." ⚓

*C. C. Rodgers Business Agent.*

# PUBLIC HEARING 1971 PROPOSALS

THE MERCHANT MARINE COUNCIL will hold a hearing on Monday, March 29, 1971, commencing at 9:30 a.m. in Conference Room 2230, Department of Transportation, Nassif Building, 400 7th Street SW., Washington, D.C., for the purpose of receiving comments, views, and data on the proposed changes in the navigation and vessel inspection rules and regulations.

These proposals are set forth in the Merchant Marine Council Public Hearing Agenda, CG–249, dated March 29, 1971. The agenda contains the specific changes being proposed to the navigation and vessel inspection regulations, and for certain items the present and proposed regulations are set forth in comparison forms, together with reasons for the changes.

These proposals are set forth officially in the Federal Register, which contains general descriptions of the proposed changes in the regulations, together with appropriate references to statutes authorizing such requirements.

Copies of the Agenda have been mailed to persons and organizations who have expressed a continued interest in the subjects under consideration and have requested that copies be furnished them. Copies of the Agenda will be furnished upon request to the Commandant (CMC), U.S. Coast Guard, Washington, D.C. 20591, so long as they are available. After the supply of extra copies is exhausted, copies will be available for reading purposes in Room 8234 Coast Guard Headquarters, or at the offices of the various Coast Guard District Commanders.

Comments on the proposed regulations are invited. Written comments containing constructive criticism, suggestions, or views are welcomed. However, there will be no acknowledgment of the comments received. The public hearing held by the Merchant Marine Council is informal and intended to obtain views and information from those who will be directly affected by the proposals under consideration. Each oral and written comment submitted on time will be fully considered and evaluated. The proposals may be changed as a result of these comments.

Each person or organization who desires to submit comments, data, or views in connection with the proposed regulations set forth in the Merchant Marine Council Public Hearing Agenda should submit them prior to March 26, 1971, to the Commandant (CMC), U.S. Coast Guard Headquarters, Washington, D.C. 20591. Comments, data, or views may be presented orally or in writing at the Public Hearing before the Merchant Marine Council on March 29, 1971. In order to facilitate the Coast Guard's checking and recording of the received comments, it is requested that each comment regarding a section or paragraph of the proposed regulations be submitted on Form CG–3287, showing the section number (if any), the subject, the proposed change, the reason or basis, and the name, business firm or organization (if any), and the address of the submitter. A small quantity of Form CG–3287 is attached to the Agenda. Additional copies may be reproduced as needed. All written comments regardless of the form used, will be accepted.

Each item in the Agenda has been given a general title, intended to encompass the specific proposals presented thereunder. It is urged that each item be read completely, because of the application of proposals to specific employment or types of vessels may be found in more than one item.

On the following pages the PROCEEDINGS presents only the most succinct synopses of the proposed items of revision approved for consideration at the hearing. The Agenda must be consulted for full particulars.

## ITEM PH 1–71—PERSONNEL AND MANNING OF VESSELS

### 1a—AUTHORIZATION TO SERVE AS PILOT OF VESSELS

Part 10 of Title 46, CFR requires a license for Master/Mate of freight and towing vessels of not more than 1000 gross tons which authorizes the Master or Mate to serve as pilot of a vessel to which he is assigned. The examination for this license is basically similar to other licenses for Master or Mate, and, therefore, the need to examine a person holding a license as Master or Mate of an equivalent scope (waters and tonnage) to obtain a license for freight and towing is redundant. Consequently, the proposed change is to clarify the authority of a licensed officer to permit him to serve as pilot aboard small vessels to which he is assigned as Master or Mate.

### 1b—APPRENTICE ENGINEER TRAINING FOR LICENSE AS THIRD ASSISTANT ENGINEER

A proposed amendment to Part 10 would permit participation in apprentice engineer programs as qualifying service for a regular license as third assistant engineer (motor). Present regulations authorize apprentice engineer training programs for applicants for a license as engineer of steam vessels.

### 1c—FEE FOR DUPLICATE MERCHANT MARINERS DOCUMENTS

46 USC 643(h) provides that seamen will pay the government the cost required to supply duplicate documents. The present regulations require payment of the fee at the time of issuance. Statistics indicate, however, that 18 percent of the duplicate documents prepared are never claimed. The proposed change would require the collection of the fee for duplicate merchant mariners' documents at the time of application for such documents.

#### 1d—ABLE SEAMEN

With the recent expansion of the offshore industry a demand has arisen for personnel to fulfill the manning requirements for able seamen on mineral and oil vessels equipped with and without lifeboats. The Subcommittee on Manning, Licensing, and stability of the Coast Guard's National Offshore Operations Advisory Panel recommended the establishment of a limited able seaman endorsement to meet these increased manning requirements. This proposal would create a special category of able seamen, drawn from the people already employed in the mineral and oil industry and familiar with the particular operations involved with oil exploitation and exploration as accomplished within the marine mode. It includes experience level categories of 18 months and 12 months. Holders of certification under the 18 months' provision may comprise the required number of able seamen required on mineral and oil vessels while holders of certification under the 12 months' provision will be limited to one-fourth of the number of able seamen required on vessels of this type. Since many of these vessels now carry liferafts in lieu of lifeboats, it is felt that able seamen without qualification as lifeboatman could adequately meet the manning requirements for such vessels without a sacrifice in safety until such time as the lifeboat requirements are satisfied.

#### 1e—SUSPENSION AND REVOCATION PROCEDURE

This proposal, the product of a West Coast maritime study group (the Committee on Comprehensive Seamen's Benefits and Regulations), seeks to achieve more flexible revocation and suspension procedures in the case of mental or physical incompetency by providing the examiner with the authority to issue an order of indefinite suspension when it appears that the respondent is not permanently incapacitated. The amendments also provide for a new procedure to be followed in the issuance of new documents or licenses when revocation or indefinite suspension has been ordered, or there has been a voluntary surrender, in the case of incompetency. In the case of a misconduct order, the applicant must wait 1 or 3 years depending on the nature of the misconduct, while in the incompetency cases the respondent will be able to file his first application anytime he feels he is no longer suffering from the disability. The application for a new document together with the supporting material will be forwarded to a special Administrative Clemency Board. The proposed regulations will provide that if a seaman refuses to submit to a physical examination, the charge shall be taken to be established, and the examiner may suspend or revoke the document. These changes will permit the examiner flexibility to categorize alcoholism as a mental illness and thereby protect the welfare of the seaman.

### ITEM PH 2–71—MARINE ENGINEERING

#### 2a—MISCELLANEOUS CHANGES

The proposals in this item pertain to Subchapters F, Q and T. Many concern basic editorial changes and corrections of the regulations. Two changes are designed to compensate for changes in adopted industry standards and specifications. Others concern adopting additional standards including pressure rating of steam traps, ball-valve construction, silver brazing joints for wrought and cast fittings, nuclear power piping and noise levels for gas turbine installations. A number of changes represent an effort to keep the regulations current by recognizing technological advances and changes in philosophy based on histories of successful performance. The final group proposes regulations concerned with answering many recurring interpretive inquiries from industry.

#### 2b—ALUMINUM FUEL TANKS

These changes pertain to the acceptability of aluminum as a material for the fabrication of independent fuel tanks for gasoline and diesel fuel service. A long history of successful performance of aluminum tanks, attested to by designers, builders, owners and Coast Guard Inspectors, in conjunction with the results of recent tests, prompts the proposal that aluminum, with appropriate limitations, be included in the various tables of acceptable tank materials.

### PH 3–71—SUBDIVISION AND STABILITY

Cargo vessel regulations have omitted the subject of subdivisions. Some vessels may be so designed that flooding of only one compartment may cause flooding and sinking of the vessel. The proposed regulation concerning subdivision would set a minimum pollution prevention standard which would limit the amount of ship's cargo and fuel that would be lost in the event of a casualty. In Subchapter I, the proposal would amount to a requirement that cargo and miscellaneous vessels over 328 feet in length must withstand the final stage of flooding of any one compartment between transverse bulkheads. Vessels 328 feet or less would comply insofar as is reasonable and practicable but would require the submission of calculations so that the achieved subdivision of each such vessel could be officially noted. Both the Maritime Administration and the U.S. Delegation at the 1960 Safety of Life at Sea Conference have given strong backing to this idea. In Subchapter D, tank vessels would be required to be subdivided to withstand the final stage of flooding of any two adjacent spaces. Vessels of 328 feet or less would be required to withstand the final stage of flooding of the machinery space alone, or any two adjacent spaces excluding the machinery and where reasonable and practicable

any two adjacent spaces including the machinery space. The increasing size of new U.S.-flag tankers has necessitated these changes.

## PH 4–71—PORTABLE TANKS FOR COMBUSTIBLE LIQUIDS ON CARGO AND MISCELLANEOUS VESSELS

The proposed revision in the regulations applicable to transporting combustible liquids in portable tanks is designed to simplify administrative procedures by eliminating the requirement for the Commandant to authorize each separate nonparaffinic hydrocarbon. Also, it is proposed to revise venting requirements to provide an added safeguard for the additional hazard created by exposure of a portable tank to fire or other unexpected sources of external heat.

## PH 5–71—ELECTRICAL

### 5a—DEFINITIONS, CLARIFICATIONS AND MANUALS

Several proposals are included in this item. The first proposal provides a definition for the term nonsparking fan and modifies the regulations with a more consistent use of standard terms in the area of battery room ventilation. The second proposal includes a revision of the definition of waterproof machine in order to agree with industry standards. Also included are miscellaneous changes proposed as a result of comments received following last year's public hearing. The last part involves a proposed editorial change which proposes to reinsert previous wording in the regulations governing emergency lighting and power systems.

### 5b—INSULATION MATERIALS

This proposed change updates the definitions of the insulation classes by deleting Class O, and changing the definitions of Class A, Class B, and Class H to those specified in the National Electrical Manufacturers Association Publication No. MG1.

### 5c—REQUIREMENTS FOR UNDERWRITERS' LABORATORIES, INC., LISTING OR LABELING

This proposal would eliminate the general connotation of "approved equipment" and insert the explicit requirement for Underwriters' Laboratories, Inc. listing or labeling for projectors and enclosures for arc or incandescent lamps and associated equipment.

### 5d—IMPRESSED CATHODIC PROTECTION SYSTEMS ON TANK VESSELS

These proposed changes would permit the installation of impressed cathodic protection systems in grade E cargo tanks.

### 5e—EXPLOSIONPROOF EQUIPMENT ON TANK VESSELS

This proposal will increase the safety requirements of tank vessels constructed after 1 July 1971 by increasing the existing "10-foot rule" to include the entire cargo deck as a hazardous area. Flammable vapors are present outside the smaller area in sufficient quantities to produce explosive or ignitable mixtures. IMCO has been studying this concept for some time and the common European practice is to consider the entire cargo deck a hazardous area.

### 5f—GENERAL ALARM SYSTEMS FOR BARGES

In an effort to amplify the existing requirements for "a suitable alarm bell" as applied to the increasing number, size, and complexity of barges coming into service, this proposal requires that barges should have general alarm systems as nearly similar to that of ships as their design permits.

### 5g—WIRING ON SMALL PASSENGER VESSELS

As a result of many trial installations, it has been shown that marine-type armored cable is not necessary for a safe electrical system on small passenger vessels. This proposal is a relaxation of existing regulations to permit specially suitable commercial cable for electrical systems of more than 50 volts on these vessels. The capacity of the cable has also been modified by assuming an ambient temperature of 40° C. in lieu of 50° C.

## PH 6–71—BULK DANGEROUS CARGOES

This proposal has several purposes. One is to correct oversights and editorial errors in Subchapter O. Also, additional products have been evaluated for transportation in unmanned barges and are included in this proposal. Finally, changes to Subchapter D, incident to the proposed changes to Subchapter O are also included.

## PH 7–71—LIFESAVING EQUIPMENT

### 7a—RING LIFEBUOYS AND WATERLIGHTS

This proposal will establish in Subchapters D, H, I, and U a service use life of the Floating Orange Smoke Distress Signal (15 min.).

### 7b—ADDITIONAL LIFE PRESERVERS ON PASSENGER VESSELS

This proposal requires additional life preservers and their stowage so as to be readily available to personnel on watch in the engineroom and pilothouse, and at the bow lookout.

### 7c—ILLUMINATION OF LIFESAVING LAUNCHING AREAS

A conflict exists in the regulations between electrical

regulations and vessel regulations regarding illumination for lifeboats and liferafts. Whereas, the electrical regulations apply to all vessels the vessel regulations apply only to international voyages and to certain other vessels whose embarkation deck is more than 30 feet above the light load line. As the problems of embarkation and loading of lifeboats/liferafts in the dark are similar regardless of vessel route, this proposal would change the vessel regulations to agree with the electrical regulations and make lifeboat/liferaft emergency illumination generally applicable.

Also included in this item are proposed changes primarily affecting passenger vessels intending to bring the regulations into proper accord with SOLAS-60. The governing SOLAS regulations require that all emergency lighting be from the temporary source and that emergency lighting be provided at the lifeboat and liferaft embarkation and launching areas. This represents a change from the present regulations which permit these loads to be split between the temporary and final emergency sources.

## PH 8–71—SPECIFICATIONS

### 8a—LIFEBOAT WINCHES

Several considerations prompted these proposals. Two foundry errors involving a mix-up betwen cast iron and ductile iron have necessitated the elimination of these two metals entirely from lifeboat winches. Two proposals are made for improving the shipboard maintenance of lifeboat winches. The first of these requires the elimination of inaccessible areas on the exterior which have the potential to become pockets of corrosion. The second improvement deals with the arrangement of internal bearings so that they can be lubricated independently and will not be dependent on an internal splash system that will be inoperative during long periods when a winch is secured at sea. Safety features relating to the use of portable air or electric motor hoisting rigs are proposed which will make them comparable to permanently installed electric winch motors. To facilitate the practice of subcontracting, it is proposed to permit a winch manufacturer to use a test tower located outside of the shop where a winch is manufactured. In addition, the necessity for excessive handcranking when testing a gravity davit with a winch would be reduced.

### 8b—LIFEBOATS

The proposals are made in order to update current references to A.S.T.M. Standards, to include the hydraulic cranking system contained in the newly revised Marine Engineering Regulations (Subchapter F), to include current practices as to the use of other materials, methods and tests, and to update and clarify the fibrous glass reinforced plastic (FRP) requirements in accordance with recognized standards of construction.

### 8c—LINE THROWING APPLIANCES

These proposed changes are intended to bring the Coast Guard's specification and the Military specification into close conformity, to include a table of allowable malfunctions and nonacceptable conditions, to allow greater flexibility in design and material, and to allow for acceptance of appliances made and tested to standards of MIL–L–45505A where conditions warrant and which bear the appropriate USCG marking.

### 8d—INFLATABLE LIFERAFTS

A number of reasons exist for these proposed amendments to the specifications for inflatable liferafts. First, many Coast Guard marine inspection offices have reported a number of regulations in need of clarification. Secondly, some of the rafts originally approved by the Coast Guard are now approaching their 10th year. A method of CO2 inflation is proposed as a rigorous method of determining such deterioration as now may exist in these rafts because of their age. In addition, the I.C.C. hydraulic test regulations that apply to the inflation cylinders of these rafts are brought forward so that they will not be overlooked at 5-year intervals. Thirdly, rescue and survival instructions recommended by the Inter-Governmental Maritime Consultative Organization would now be included in the instructions accompanying each raft. Fourth, a physical standard is proposed for evaluating the 2-mile distance now required for the outside canopy light of the rafts. Finally, the National Transportation Safety Board has recommended stronger sea painters for these rafts. The method proposed herein gives a raft a stronger sea painter while still providing the float-free capability that is currently required.

## PH 9–71—FIBROUS GLASS REINFORCED PLASTIC CONSTRUCTION ON SMALL PASSENGER VESSELS

This proposed change is necessary in order to provide uniformity in approval of materials for fibrous glass reinforced plastic construction. Particular concern has arisen over use of nonfire-resistant-type resins in general construction and the proposed regulation would now require the use of fire-resistant-type resins. Periodically, a list of acceptable resins meeting the Coast Guard's fire-resistant criteria will be published. ‡



413-551—71——2

# AIR TESTING
# or
# "HOW to BUILD A BOMB"

*Lt. Comdr. D. G. Langrock, USCG*
*Chief, Merchant Marine Technical Branch, Ninth Coast Guard District*

*Lieutenant Commander Langrock who is presently assigned in the 9th Coast Guard District, as Chief, of Merchant Marine Technical Branch is a 1961 graduate of the U.S. Coast Guard Academy. He served aboard the CGC* Chilula, *1961–63 and CGC* Mendota, *1963–65. He received his SM (mechanical engineering) and Naval Engineer Degrees from Massachusetts Institute of Technology in 1967. From 1967 to July 1970 Lieutenant Commander Langrock was assigned in the 12th Coast Guard District, Merchant Marine Technical Branch as Chief, Hull Section and Chief, Marine Engineering Section, where he served until his present position.*

A short time ago an unfortunate accident occurred aboard a U.S. Merchant Vessel. This accident cost the life of a licensed officer and injured another. The accident resulted from the failure to take adequate safety precautions while air testing a pressure vessel.

The man was repairing leaks in the basket of a single effect basket type evaporator. The basket was removed from the shell and was placed on the engineroom deck. The leaks were being located by applying a soap solution to the basket which was pressurized with air. When a leak was detected the pressure in the basket was released and the hole was silver soldered closed. This is a very effective method of locating leaks and one that is commonly used; however, a great deal of caution must be used in conjunction with this practice.

The air was supplied to the basket through a rubber hose directly from the ship's service air system. The ship's service air system was regulated at about 100 p.s.i.g. and the basket was designed for about 20 p.s.i.g. There was a root valve located between the ship's service air system and the rubber hose; however, this was the only valve in the system. The men were aware of the fact that the basket could not take the full pressure of the ship's service air system so they were opening the valve for a short period of time only allowing a little pressure to build up. Apparently the valve was not completely closed and allowed air to leak by, causing the pressure to continue to build up. When the pressure had built up to a point where the basket could no longer contain it, the basket exploded knocking the man 13 feet into the air. He hit the overhead and fell back to the deck. Unfortunately, the man was killed instantly and nothing could be done for him. At best, pneumatic testing is hazardous, but under these conditions it is extremely dangerous. There were no reducing valves, gauges, or relief valves between the ship's service air system and the basket.

The reason that pneumatic testing is very hazardous is that the amount of energy which can be stored in a vessel is dependent upon the compressibility of the fluid contained. A very compressible fluid such as air or any other gas can store much more energy than a virtually incompressible fluid such as water or another liquid. This is why hydrostatic testing is preferred over pneumatic testing from a safety standpoint.

I have made some rough calculations which illustrate the amount of energy that can be stored in one of these baskets. The air contained in the basket (about 8 cubic feet at 100 p.s.i.g.) would occupy about 60 cubic feet at normal atmospheric conditions. If this air were allowed to expand so that the energy was converted more efficiently, it could do enough work to lift a 200 pound man over 700 feet in the air. Both the *American Society of Mechanical Engineers Boiler and Pressure Vessel Code* and U.S. Coast Guard, *Marine Engineering Regulations* (subchapter F) caution against the use of pneumatic testing of pressure vessels. In general they both state that only under special circumstances should a pneumatic test be substituted for a hydrostatic test and then only under carefully controlled conditions.

If compressed air must be used for a leak test, follow these simple precautions, they may save someone's life and prevent damage to equipment.

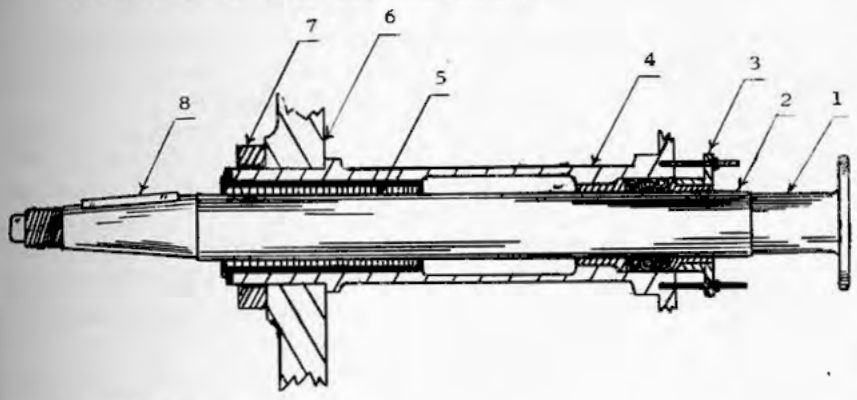
1. Blank off all openings in the pressure vessel securely.
2. Have a reducing valve and a gage between the root valve from the ship's service compressed air system and the pressure vessel.
3. Use only 3 or 4 p.s.i.g. This pressure is well below the design pressure of most pressure vessels and will show any leaks with a soap test.
4. Protect the pressure vessel with a relief valve set well below the maximum allowable working pressure.
5. Take time to think and check-out the setup.

Safety rules and regulations cannot be written to cover every conceivable situation that may arise aboard a ship, so all of us must think about the possible safety hazards which may evolve from a job before we set out to do it. Only in this way can we stop the needless loss of life caused by accidents. ‡

*—U.S. Coast Guard Engineer's Digest*

## PROPELLER SHAFTING

**Q. Name the numbered parts on the following drawing.**




**A. 1. Tailshaft**
**2. Bronze shaft liner**
**3. Stern tube gland**
**4. Stern tube**
**5. Bearing**
**6. Stern frame**
**7. Stern tube nut**
**8. Propeller key**

---

Q. What is the function of side keelsons or longitudinal intercostals in the double bottom of a vessel?

A. Side keelsons or longitudinal intercostals provide local stiffening to inner and outer plating in way of machinery, forward part of vessel and elsewhere as needed. They increase the longitudinal strength and stiffness of the bottom and serve to support the floors against tripping. Side keelsons or longitudinal intercostals are sometimes used to further subdivide the inner bottom tanks and thus reduce effects of free surface where they constitute a watertight barrier.

Q. What precautions must be observed in obtaining drinking water in port?

A. Water for drinking and cooking must be obtained from a supply of known purity. Definite knowledge must be had that the water is wholly safe before it is put in the vessel's tanks. To secure this the health officer of the port should be consulted. In American ports, water should not be purchased from any water boat which does not hold an unrepealed certificate from the U.S. Public Health Service. Firehose should not be used to fill tanks. For this purpose it is best to have a special hose which is used for no other purpose.

Q. How are each of the following types of fire extinguishers checked and tested at a vessel's annual inspection?

(a) Soda acid.
(b) Foam.
(c) Carbon Dioxide.

A. (a) Discharge. Clean inside and hose thoroughly. Recharge.

(b) Discharge. Clean inside and hose thoroughly. Recharge.

(c) Weigh cylinder. Recharge if weight loss exceeds 10 percent of weight of charge. Inspect hose and nozzle to be sure they are clear.

Q. How many extra charges are required to be carried for portable fire extinguishers?

A. Extra charges for 50 percent of the extinguishers carried; however, if the unit is of such variety that it cannot be readily recharged by the vessel's personnel, one spare unit of the same classification shall be carried in lieu of spare charges for all such units of the same size and variety.

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Q. Find the maximum allowable pressure for the shell of a boiler using the following data:

| | |
|---|---|
| Maximum allowable stress | 22000 p.s.i. |
| Minimum thickness of shell | 1.40 inches |
| Inside radius of shell | 36 inches |
| Minimum efficiency of joint | 95 percent |

$$P=\frac{S\,T\,E}{R+0.6T}$$

A. $P=\dfrac{S\,T\,E}{R+0.6T}=\dfrac{22000\times1.4\times.95}{36+(.6\times1.4)}$

$P=794.24$ p.s.i.

# NAVIGATION AND VESSEL INSPECTION CIRCULAR 7–70

14 October 1970

**Subject: Marine Type Portable Fire Extinguishers**

### PURPOSE

The purpose of this circular is to emphasize the importance of proper inspection and maintenance of marine type portable fire extinguishers.

### BACKGROUND

In recent months several reports have been received concerning defective marine type portable fire extinguishers. Unfortunately defects are often discovered when an extinguisher is needed the most. Routine annual inspections supplemented by monthly spot checks should uncover most defective extinguishers.

### DISCUSSION

The purpose of a well-planned and well-executed maintenance program is to afford maximum probability that an extinguisher:

a. Will operate properly between the time intervals established for maintenance examinations in the environment to which it is exposed.

b. Will not constitute a potential hazard to persons in its vicinity, or to operators or rechargers of extinguishers.

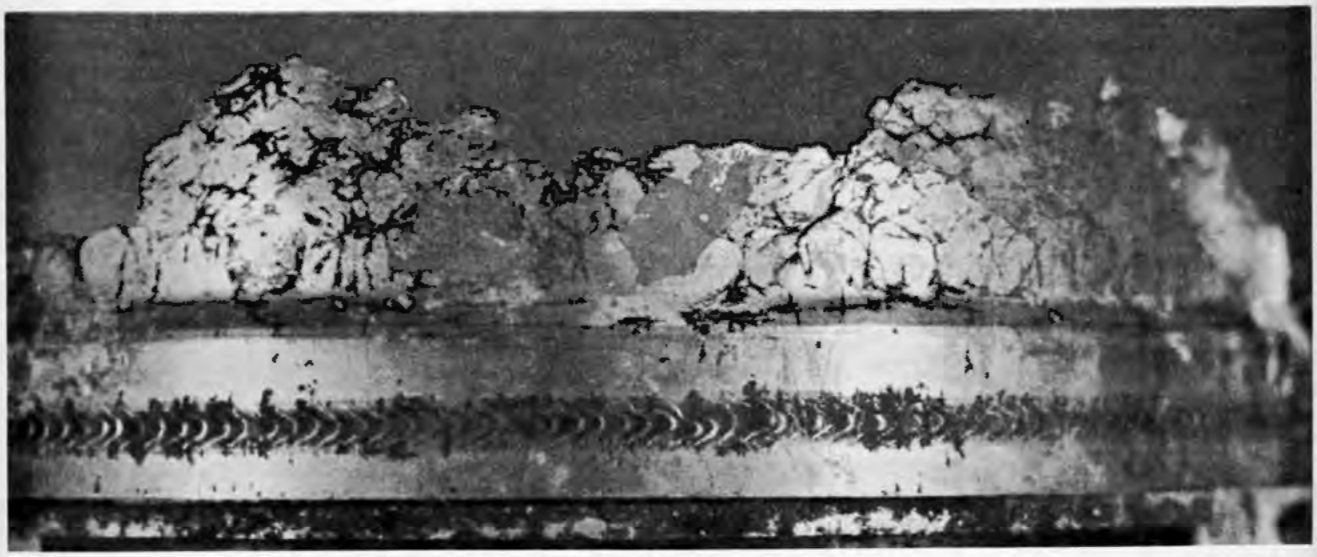
In this regard extinguishers should be inspected by a vessel's crew monthly or at more frequent intervals when circumstances require to ensure they are in their designated places, to ensure they have not been actuated or tampered with, and to detect any obvious physical damage, corrosion or other impairment. Any extinguisher showing defects should be given a complete maintenance check.

Particular attention should be given by the vessel's crew and Coast Guard inspectors to the inspection of extinguishers which have stainless steel shells.

Stainless steel is subject to stress corrosion cracking when exposed to corrosive environmental conditions. If stress corrosion cracking occurs and is undetected the extinguisher becomes a serious hazard. This is especially true of extinguishers that are pressurized immediately before use such as the chemical foam, soda and acid, and the cartridge operated dry chemical types. The extremely rapid build up of pressure could cause a defective shell to rupture. The photograph below is of a stainless steel shell extinguisher that failed. Note the hair line corrosion cracks. The areas that require close inspection are the dome and the bottom under the skirt. These pieces are cold formed and subject to locked in stresses.

### ACTION

If an extinguisher fails in use a report of the failure should be transmitted by a responsible party on the vessel to a Coast Guard Officer in Charge, Marine Inspection via letter. The Officer in Charge, Marine Inspection will then transmit the failure to Coast Guard Headquarters on Coast Guard Form CG–2752 (2–62) "Report of Equipment Failure on Inspected Vessel" through the appropriate channels. ‡



## NAVIGATION AND VESSEL INSPECTION CIRCULAR 8–70

December 21, 1970

**Subj: Hydraulic releases procedure for units held in storage**

Ref: (a) 46 CFR 160.062–4(f)
(b) NVC 7–69
(c) NVC 7–69 CHANGE 1
(d) NVC 7–69 CHANGE 2

### PURPOSE

This instruction provides an acceptable period of storage for approved hydraulic releases of recent manufacture or reconditioning.

### BACKGROUND

The vessel inspection regulations require the approved hydraulic release installed with a raft to undergo periodic servicing at intervals of 12 to 15 months as determined by the dates shown thereon. The installation of these devices is being complicated by the lack of any provisions for the time during which they are held in storage. As matters now stand, when the devices are due for servicing, they must be returned to their factory of origin because local servicing arrangements are not available. To provide for the delay that will be caused by this handling and shipment, a permissible period of storage time is necessary that will not be counted against the 12 to 15 month interval described above.

### ACTION

Until further notice, an approved hydraulic release is to be allowed a period of up to nine (9) months in storage from date of manufacture or reconditioning which shall be applied without penalty before it is installed on a vessel. If a vessel operator chooses to avail himself of this period, he shall request the Officer in Charge, Marine Inspection at the time a hydraulic release is installed to have the word "INSTALL" added to the inspection tag followed by the date and the initials of the Marine Inspector. In general, an inflatable liferaft and its hydraulic release are intended to be removed for servicing at the same time. ⚓

# AMENDMENTS TO REGULATIONS

## *Title 33 Changes*

**Chapter I—Coast Guard, Department of Transportation**

**SUBCHAPTER O—POLLUTION**

**PART 153—CONTROL OF POLLUTION BY OIL AND HAZARDOUS SUBSTANCES, DISCHARGE REMOVAL**

1. Section 102 of the Water Quality Improvement Act of 1970 (84 Stat. 91) amended certain sections of the Federal Water Pollution Control Act (62 Stat. 1155, as amended; 33 U.S.C. 466) including the insertion of a new section 11. This new section provides for prevention measures, cleanup procedures, enforcement authority, and penalties relating to the discharge of harmful amounts of oil into or upon the navigable waters of the United States, adjoining shorelines, or the contiguous zone.

2. Subsection 11(b)(4) of the Act requires that any person in charge of a vessel or of an onshore or offshore facility, as soon as he has knowledge of any discharge of oil in harmful quantities from such vessel or facility into or upon the waters designated by the Act or the adjoining shorelines, shall immediately notify the appropriate agency of the United States Government of such discharge. Pursuant to delegated authority, the Secretary of the Interior has by regulation established what constitutes under the Act the discharge of oil in harmful quantities. These regulations are contained in Title 18, Code of Federal Regulations, Part 610 and were published in the Federal Register of September 11, 1970 (35 F.R. 14306). By Executive Order 11548 (35 F.R. 11677), dated July 20, 1970, the President designated the Coast Guard as the "appropriate agency" to which notice of the discharge of oil shall be given and authorized the issuance of regulations to implement this designation.

3. Subsection 11(b)(5) of the Act authorizes the assessment of a civil penalty when oil is knowingly discharged into or upon the waters and land areas specified in the Act. Subsection 11(j)(2) additionally authorizes the assessment of a civil

penalty for violation of any regulation issued pursuant to subsection 11(j)(1) of the Act. Both civil penalty authorities together with certain specified authority under subsection 11(j)(1) relating to the issuance of regulations for prevention of discharge of oil from vessels and facilities and relating to the inspection of vessels and their oil cargoes have been delegated to the Commandant by the President and the Secretary of Transportation respectively in Executive Order 11548 (35 F.R. 11677) and 49 CFR 1.46 (l) and (m) (35 F.R. 14509). In addition, Executive Order 11548 delegated to the Commandant the responsibility and authority to carry out the provisions of subsection 11(m) relating to the enforcement of section 11 of the Act.

4. Pursuant to these authorizations, this document amends Subchapter O of Title 33, Code of Federal Regulations by adding a new Part 153—Control of Pollution by Oil and Hazardous Substances, Discharge Removal. At the present time, it is contemplated that Part 153 will consist of four subparts. This document only includes two subparts, A and B. Subpart A—General, is concerned with regulations of general application. Subpart A contains definitions of terms used in Part 153 and delegations of authority from the Commandant, U.S. Coast Guard to the Coast Guard District Commanders. Subpart B is concerned with the notice of the discharge of oil. It provides the details concerning the manner in which and the persons to whom the notice required by subsection 11(b)(4) is to be given.

5. The addition of Subpart A involves a delegation of authority and relates to the internal management of the Coast Guard and notice and public procedures thereon are not required. Since it is imperative that the public be informed without delay as to the manner in which the notice required by the statute is to be given, it is found that notice and public procedure on Subpart B are not required. Accordingly, this amendment can be made effective in less than 30 days.

The complete text of these amendments is published in the Federal Register of November 21, 1970.

## *Title 46 Changes*

### Chapter I—Coast Guard, Department of Transportation

### MISCELLANEOUS AMENDMENTS TO CHAPTER

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

This is the fourth of a series of documents which concern the amendments considered by the Council at the public hearing held on March 30, 1970. The first document related to the proposal designated Item PH 11–70 and was published in the FEDERAL REGISTER of June 19, 1970 (35 F.R. 10111). The second document related to the proposal designated Item PH 12–70 and was published in the FEDERAL REGISTER of September 11, 1970 (35 F.R. 14315). The third document withdrew the proposal designated Item PH 9–70 and was published in the FEDERAL REGISTER of October 14, 1970 (35 F.R. 16091). The present document concerns the proposals designated Items PH 2–70, PH 3–70, PH 5–70, PH 6–70, PH 7–70, PH 8–70, and PH 10–70. Item PH 4–70 was withdrawn from the agenda prior to the public hearing. The remaining item, Item PH 1–70, will appear in a subsequent document.

The Merchant Marine Council has recommended changes in a number of the proposals contained in this document as a result of its study of the proposals and the comments received from interested persons. The most significant changes recommended by the Council will be indicated in connection with each item.

Item PH 2–70 proposed to add Subpart 182.40 to Subchapter T to establish standards for the use of PVC and other nonmetallic materials in the piping systems of vessels subject to this subchapter. Current regulations in Subchapter T contain no guidelines for the use of these materials in piping systems other than fuel oil. The only standards are outlined in Subchapter F which in some instances are too restrictive for the vessels subject to this subchapter. One comment objected to the proposed § 182.40–1(a)(3) requiring through hull fittings and shut off valves to be metal. The Council recommended that this Subdivision be amended to provide that the hull fittings and shut off valves shall be metal, except that with respect to nonmetallic hulls consideration may be given to specific approval of materials which afford a degree of safety and heat sensitivity equal to that afforded by the hull. Another comment objected to the reference in the proposed § 182.40–1(a)(1) to 46 CFR 56.60–25 to determine the requirements for the penetration of watertight bulkheads and decks. The Council recommended that the Subdivision be amended by deleting this reference and by expressly setting forth the requirements therein. In response to

another comment, the Council recommended that § 182.40–5(b) be amended to expressly state the vessels that are required by § 181.10–1(a) to have a power driven fire pump instead of referring to § 181.10–1(a).

Item PH 3–70 proposed to add to 46 CFR 10.02–9(e) subparagraphs (3), (4), (5), and (6) to require commencing July 1, 1971 each applicant for renewal of a license as a deck officer, including that of a pilot, which is endorsed as a "radar observer" to demonstrate continued proficiency in radar plotting. In response to comments received, the Council recommended the following changes: The word "plotting" in paragraph (e) (3) and (4) is changed to "plotting or interpretation", and paragraph (e)(6) is changed to expressly provide that a deck license without the radar observer endorsement may be renewed without the necessity of demonstrating knowledge of radar as required by paragraph (e) (3) and (4). The Council also recommended that the effective date of this requirement be deferred until July 1, 1972, instead of July 1, 1971, as proposed. Item PH 3–70 also proposed to revise § 10.05–46(a) to require each applicant for an original license, renewal of a license or raise in grade of a license for service on vessels of 300 gross tons or over, to demonstrate by professional examination his qualifications as a "radar observer". It was proposed relative to the renewal of a license to make this requirement effective July 1, 1971. The Council recommended the deletion of the phrase "renewal of license" from § 10.05–46(a) since it would require an applicant for renewal of license without the radar observer endorsement to take the examination. Item PH 3–70 further proposed to revise § 157.20–32(a) to require each deck officer and pilot on a radar equipped vessel of 300 gross tons and over certificated for navigation on oceans, coastwise, or Great Lakes waters to be qualified as a "radar observer". It was proposed to make the requirement applicable to pilots on and after July 1, 1971. In response to comments received, the Council recommended that the phrase, "navigation on any waters" be substituted for the phrase, "navigation on oceans, coastwise, or Great Lakes waters"; that the requirements as to pilots be limited to pilots serving on board as required by Federal laws, and that the effective date as applicable to pilots be deferred until July 1, 1972. Item PH 3–70 finally proposed to add § 157.20–40(f) to prohibit service as a pilot on any radar equipped vessel to which the section applies commencing on July 1, 1971, who is not qualified as a "radar observer". The Council recommended that the proposal be limited to service on or after July 1, 1972, of pilots required by Federal law on vessels of 300 gross tons and over navigating any waters.

Items PH 5a–70 to PH 5d–70 proposed various amendments to Subchapter D (Tank Vessels). Specifically, Item PH 5a–70 proposed to amend § 35.30–1(b) to require the display of the warning sign on an anchored or moored vessel, unless it is empty and gas-freed, during the entire time it is subject to being approached by persons not attached thereto. At present, this paragraph merely requires the warning sign to be displayed during cargo transfer operations. Item PH 5b–70 proposed to amend Table 34.50—10(a) to require portable fire extinguishers to be on board unmanned tank barges only during cargo transfer operations or when operating the cargo pump or auxiliary boiler. Item PH 5b–70 also included a proposed change to § 35.35–1 to place the responsibility on the certificated tankerman in charge of an unmanned barge to ensure that the fire extinguishers are on board and are readily available. Item PH 5c–70 proposed the addition of § 32.60(c)(4) to require that pumprooms on tank vessels constructed on or after July 1, 1951 be equalized with a separate ventilation supply in addition to the access opening. Item PH 5d–70 proposed changes to §§ 35.10–15(c), 78.17–45(c), and 97.15–30(c) designed to bring these sections into agreement with Table 46 CFR 112.05–5(a) which specifies the minimum emergency power requirements for U.S. vessels. This item also proposed a change to § 112.15–1(g) which would require emergency lights in all mess and recreation rooms in addition to those of the crew. The Council recommended approval of Items PH 5a–70 to PH 5d–70 without change.

Items PH 6a–70 to PH 6c–70 proposed various changes to Subchapter F (Marine Engineering). Item PH 6a–70 proposed additions to the regulations to modify the provisions in section III of the ASME Code with regard to nuclear reactor containment, to take into consideration the possible occurrence of high external pressures in the event of the sinking of a ship. This item also proposed standards to assure an adequate design for a pressure vessel which is by configuration and size vulnerable to small external pressures. Item PH 6b–70 proposed an exemption from Coast Guard shop inspection and approval for Class II pressure vessels having an internal volume of less than 5 cubic feet provided they are ASME U or UM stamped. Item PH 6c–70 proposed to bring the regulations relative to the control systems for automatic auxiliary heating equipment into compliance with the National Fire Protection and Underwriters' Laboratories Standards. The Merchant Marine Council recommended the approval of Items PH 6a–70 to PH 6c–70 without change.

Items PH 7a–70 to PH 7g–70 proposed various amendments to Subchapter Q (Specifications). Item PH 7a–70 proposed to provide a reference specification for the use of Microcellular Nylon as a buoyant material in personal lifesaving devices. The Council recommended the approval of Item PH 7a–70 without change.

Item PH 7b–70 proposed changes in the approval procedures for the

current specifications for interior finishes to provide marking to aid field identification by vessel inspectors and to permit publication of an approval listing to aid naval architects, shipbuilders, and Coast Guard personnel engaged in plan review. In response to a comment, the Council recommended the extension of the approval test for interior finish to bulkhead panels and incombustible materials, in addition to the ¼-inch asbestos cement board.

Item PH 7c–70 proposed changes in the inspection procedure for certain lifesaving devices. The devices involved in the proposal with the appropriate subpart, are as follows:

| *Device* | *Subpart* |
|---|---|
| Life preserver, kapok | 160.002 |
| Life preserver, fibrous glass | 160.005 |
| Ring life buoy, cork or balsa | 160.009 |
| Buoyant vest, kapok or fibrous glass | 160.047 |
| Buoyant cushion, kapok or fibrous glass | 160.048 |
| Buoyant cushion, unicellular plastic foam | 160.049 |
| Ring life buoy, unicellular plastic foam | 160.050 |
| Buoyant vest, unicellular plastic foam | 160.052 |
| Work vest | 160.053 |
| Life preserver, unicellular plastic foam | 160.055 |
| Buoyant vest, polyethylene foam | 160.060 |

In essence, Item PH 7c–70 proposed that these eleven devices when listed and labeled by a recognized laboratory be accepted as approved for use on vessels in accordance with applicable requirements. This proposal generated considerable comment from the public. In the main, the comments favored the retention of the present system of inspecting these devices. After considering all the comments, the Council concluded that the proposal should be approved at this time as to only certain of the lifesaving devices and that with respect to these devices, the program should be phased in over an indeterminate period of time. This delay in implementing the program will permit the Coast Guard to supervise the work of the laboratory and, if necessary, to resume inspection in the event the new program is not functioning as required. Also, the delay will permit the laboratory to gradually acquire the necessary experience and to develop its organization to cope with the workload requirements.

Specifically, the Council recommended the approval of the proposed changes to Subparts 160.047 (buoyant vest, kapok or fibrous glass), 160.048 (buoyant cushion, kapok or fibrous glass), 160.049 (buoyant cushion, unicellular plastic foam), 160.052 (buoyant vest, unicellular plastic foam), 160.053 (work vest), and 160.060 (buoyant vest, polyethylene foam). However, the Council recommended that only the proposed changes to Subparts 160.048 and 160.049 be adopted at this time and that the manufacturers of buoyant cushions having approval numbers issued prior to February 1, 1971, be permitted to manufacture the devices under the terms of that approval until July 1, 1971. The changes to Subparts 160.047, 160.052, 160.053, and 160.060, although approved in principle, will be adopted at a time or times in the future depending on the experience gained from the initial program. The Council further recommended that decision be deferred at this time on whether or not to accept the proposed changes to Subparts 160.002 (life preserver, kapok), 160.005 (life preserver, fibrous glass), 160.009 (ring life buoy, cork or balsa), 160.050 (ring life buoy, unicellular plastic foam), and 160.055 (life preserver, unicellular plastic foam). The decision to accept any or all of these proposals will be made at some future time and will also be based on the experience gained from the initial program.

Item PH 7d–70 proposed changes to Subpart 160.022 (Signals, Distress, Floating Orange Smoke) to clarify the text of the Specification with regard to consideration of alternate designs; to remove specific requirements that do not relate to the desired performance and which may hamper development of other suitable signals; to require representative testing to simulate actual use conditions. The item also included a proposed change to § 160.057–4 to bring the testing procedure for the 15-minute floating orange smoke distress signal into conformance with the procedures provided in Subpart 160.022. The Council recommended approval of Item PH 7d–70 with only minor editorial changes.

Item PH 7e–70 proposed an additional requirement for the testing of incombustible materials. Item PH 7f–70 proposed, in accordance with a forthcoming amendment to the International Convention for the Safety of Life at Sea, 1960, that new passenger vessels be equipped with two sources of power supply for the electrical equipment used in the operation of the fire alarm and fire detection system, one of which shall be an emergency source. Item PH 7g–70 proposed changes to Subpart 160.008 to alter this specification to apply only to watertight flashlights, thereby eliminating the examination of explosion-proof flashlights by the Coast Guard. The Merchant Marine Council recommended the adoption of Items PH 7e–70, PH 7f–70, and PH 7g–70 without any changes.

Items PH 8a–70 to PH 8f–70 proposed amendments to Subchapter J (Electrical Engineering). Item PH 8a–70 proposed to add the provision that the duplicate battery system for multi-alarm service is not considered acceptable unless the battery capacity is such as to require servicing not more than once a week. This item also proposed to provide that automatic fire detecting systems on new vessels must meet the requirements proposed to Subpart 161.002 of Subchapter Q. The Council recommended acceptance of this Item with minor changes. Item PH 8b–70 pro-

posed a clarification to the text of § 112.50–1(a) by providing that the units in an emergency generator room shall shut down automatically upon loss of lubricating oil pressure, dangerous overspeeding, and operation of the fixed carbon dioxide system. This Item also proposed to specify the reference pressure level of sound, as defined by ANSI standard Z 24.1–1942, paragraph 1.26, by providing for a sound level of not less than 75 decibels relative to 0.0002 microbar at 1,000 Hertz (zero db) in § 113.25–10 (c)(1)(i). It was also proposed that § 111.55–1(i)(1) (redesignated § 111.65–10(a) as hereinafter explained) be clarified by providing that circuit breaker poles need not be provided in the neutral of dual voltage systems. Item PH 8c–70 proposed that since holes can be punched directly in the controller enclosure for large motors, § 111.45–1(i) (redesignated § 111.70–20(i)(1) as hereinafter explained) should provide for discretionary use of cable entrance plates. The Council recommended acceptance of Items PH 8b–70 and PH 8c–70.

Item PH 8d–70 proposed changes to the demand load requirements of Table 111.50–20(a) (redesignated Table 111.60–10 as hereinafter explained) to comply with the National Electric Code and IEEE recommended practices. Item PH 8e–70 proposed a change in § 110.15–175 (i) in the definition of dripproof machine to agree with a change in NEMA Standard MG–1–1968. The Council recommended acceptance of both Items.

Item PH 8f–70 proposed a revision of Part 111. The present organization of Part 111 (similar to the National Electric Code) lists the subject matter by component and not by system. Persons unfamiliar with the regulations found this organization difficult to use. The proposed revision arranges the subject matter by system and the order is that of generator to switchboard to distribution to ultimate use. Besides redesignating the substantive requirements of Part 111, textual material of Subparts 113.55 (Navigation Lights) and 113.60 (Signaling Lights) have been incorporated in the proposed revision. One comment received recommended that the use of single-conductor cables as provided by the proposed § 111.60–1(j) be further qualified by adding the statement that only negligible current could be carried. A comment recommended that a sentence be added to the proposed § 111.50–20 (a) which would indicate that the use of circuit breakers incorporating current limiting fuses was not prohibited. A comment pointed out that the proposed revision did not reflect the changes in names of certain societies which issue codes and standards that are incorporated by reference in this part. A comment suggested that the word "flammable" be used in a consistent manner in the proposed § 111.85–5. The Council accepted these changes and recommended that the Item, as modified, be approved.

The following table shows the derivation of the revised Part 111:

DERIVATIVE REFERENCE TABLE

| *Old section number* | *New section number* |
|---|---|
| 111.01—111.05–15 (f) | Same |
| 111.05–15(g) | 111.30–15(b)(7) |
| 111.05–15(h) | 111.05–15(g) |
| 111.05–20—111.25–35 | Same |
| 111.30–1 | 111.35–1 |
| 111.35–1—111.35–20 | 111.30–1—111.30–20 |
| 111.35–25 | 111.35–5 |
| 111.35–30 | 111.30–30 |
| 111.40–1 | Same |
| 111.45–1 | 111.70–20 |
| 111.45–5 (a)–(o) | 111.70–15 |
| 111.45–5(p) | 111.80–70(d) |
| 111.45–10 | 111.70–40 |
| 111.45–15 | 111.70–35 |
| 111.45–20 (a)–(f) | 111.70–10 (a)–(g) |
| 111.45–20(g) | Deleted |
| 111.45–20(h) | 111.80–70(b) |
| 111.45–20(h)(5) | 111.80–70 (e)(1) |
| 111.45–25 | 111.70–1 |
| 111.45–30 | 111.70–30 |
| 111.45–35(a) | Deleted |
| 111.45–35(b) | 111.70–15(p) |
| 111.45–35(c) | 111.70–10(h) |
| 111.45–40 (a)–(e) | 111.70–25 |
| 111.45–40(f) | 111.70–10(e) |
| 111.50–1 (a)–(c) | 111.60–25 (f)–(h) |
| 111.50–1(d) | 111.75–5(d) |
| 111.50–1(e) | 111.60–25(i) |
| 111.50–1(f) | 111.60–25(n) |
| 111.50–5 (a)–(b) | 111.60–25(o) |
| 111.50–5(c) | 111.80–10 |
| 111.50–5(d) | 111.80–70(a) |
| 111.50–5(e) | 111.80–13 |
| 111.50–5(f) | Deleted |
| 111.50–10 (a)–(c) | 111.75–1 |
| 111.50–10(d) | 112.05–10 |
| 111.50–15(a)(1)–(2) | 111.75–15(a)(1)–(2) |
| 111.50–15(a)(3) | 111.75–15(e)(2) |
| 111.50–15(a)(4) | 111.75–15(h)(3) |
| 111.50–15 (b)–(e) | 111.75–15 (b)–(e) |
| 111.50–15(f) | 111.75–30(a) |
| 111.50–15(g) | 111.75–15(f) |
| 111.50–20(a) | 111.60–10 |
| 111.50–20(b) | 111.70–5 |
| 111.50–20(c) | 111.75–5 |
| 111.50–20(d) | 111.75–25(a) |
| 111.50–20(e)(1) | 111.75–10(a) |
| 111.50–20(e)(2) | 111.60–30 |
| 111.55–1 (a)–(b)(2) | 111.50–1 |
| 111.55–1(b)(3) | 111.75–5(e) |
| 111.55–1(b)(4)–(6) | Deleted |
| 111.55–1(b)(7) | 111.75–25(b) |
| 111.55–1(b)(8) | Deleted |
| 111.55–1(b)(9) | 111.75–15(g)(2)(ii) |
| 111.55–1(b)(10) | Deleted |
| 111.55–1 (c)–(f) | 111.50–1 (c), (d), (e) (1) and (2) |
| 111.55–1 (g)–(i) | 111.65–1, 111.65–5, and 111.65–10 |

| | |
|---|---|
| 111.55–1(j) | 111.65–15 |
| 111.55–1(k) | 111.75–3 |
| 111.55–5 | 111.50–5 |
| 111.55–10 | 111.50–10 |
| 111.55–15 | 111.50–15 |
| 111.55–20(a) | 111.50–20(a) |
| 111.55–20 (b), (b)(1) | Deleted |
| 111.55–20(b)(2) | 111.50–20(b) |
| 111.55–20(c) | 111.50–20(c) |
| 111.55–25(a) | 111.50–25(a) |
| 111.60–1 | Same |
| 111.60–5 | Same |
| 111.60–10(a)(1) | 111.60–15 |
| 111.60–10(a)(2) | 111.60–1(j)(1)–(3) |
| 111.60–10(a)(3)–(4) | 111.60–1(k)–(l) |
| 111.60–10(b)(1)–(2) | 111.60–25(a)–(b) |
| 111.60–10(b)(3) | 111.60–1(j) |
| 111.60–10(b)(4) | 111.60–1(l) |
| 111.60–10(b)(5)–(6) | 111.60–1(m)–(n) |
| 111.60–10(b)(7) | 111.60–20 |
| 111.60–10(b)(8)–(10) | 111.60–25(c)–(e) |
| 111.60–10(b)(11) | 111.60–1(d)(7) |
| 111.60–10(b)(12) | 111.60–35 |
| 111.60–15(a) | 111.60–25(j) |
| 111.60–15(b) | 111.75–35(a) |
| 111.60–15(c) | 111.75–35(b) |
| 111.60–15(d) | 111.60–25(k) |
| 111.60–15(e) | 111.60–25(m) |
| 111.60–15(f) | 111.60–25(l) |
| 111.60–20 | 111.75–35 |
| 111.60–25 | 111.55–01 and 111.55–05 |
| 111.60–26 | 111.80–15 |
| 111.60–30 | 111.75–30 |
| 111.60–35 | 111.75–20 |
| 111.60–40 | 111.80–5 |
| 111.65–1 | 111.80–1 |
| 111.65–3 | 111.80–8 |
| 111.65–5 | 111.80–20 |
| 111.65–10—111.65–55 (inclusive). | 111.80–25—111.80–70 (inclusive) |
| 111.70–1—111.70–90 (inclusive). | 111.85–1—111.85–90 (inclusive) |
| 111.90–1—111.90–25 (inclusive). | Same |
| 113.55–1—113.55–90 (inclusive). | 111.75–15(g) |
| 113.60–1—113.60–90 (inclusive). | 111.75–15(h) |

Items PH 10a–70 and 10b–70 proposed amendments to Subchapter N (Dangerous Cargoes). Item PH 10a–70 proposed various amendments to Part 146 of the subchapter which were based on corresponding changes made for land transportation in the hazardous materials regulations of the Department of Transportation (49 CFR, Subtitle B, Chapter I). R.S. 4472, as amended (46 U.S.C. 170) requires that the Coast Guard shall accept and adopt such definitions, descriptions, descriptive names, classifications, specifications of containers, packing, marking, labeling, and certification of explosives or other dangerous articles or substances to the extent as are or may be established from time to time by the Department of Transportation insofar as they apply to shippers by common carriers engaged in interstate or foreign commerce by water. In addition to these changes, the following amendments were also proposed: To delete the transportation requirements for wet iron mass, wet iron sponge and wet iron oxide since the self heating property has been eliminated by manufacturing developments; to revise § 146.27–25 by extending the requirements for transporting baled cotton to other vegetable fibers; and to make various editorial changes to Subpart 146.29 (Detailed Regulations Governing the Transportation of Military Explosives and Hazardous Munitions on Board Vessels). Two comments were received concerning Item PH 10a–70. One comment expressed no objections to the Item. The other comment objected to the elimination in § 146.27–100 of the stowage requirement of "on deck under cover" for tanks previously containing a flammable compressed gas, poison Class A, B, or C or corrosive liquid was unjustified since no reason was given for the omission. After considering the problem, the Council determined that the omission was inadvertent and that the requirement should be added to the section. As corrected, the Council recommended that Item 10a–70 be approved.

Item 10b–70 proposed an amendment to § 147.04–1 to require that all flexible connections between cylinders and distribution piping of semiportable and fixed $CO_2$ systems be renewed or subjected to a pressure test of 1,000 pounds per square inch. The proposal was based on the results of tests conducted by the Coast Guard which found that flexible connections could fail even though they appeared satisfactory. One comment objected that the wording of the proposed amendment was not specific as to how and at what pressure the tests would be conducted. The Council recommended that the proposed amendment be changed by stating that the tests would be required under the same conditions now prescribed for the testing of cylinders. The Council recommended that the item, as modified, be adopted.

Accordingly, after due consideration of all the relevant matter including the comments of the interested persons and the recommendations of the Merchant Marine Council, the Commandant, U.S. Coast Guard, has approved the amendments set forth below and has authorized that they shall take effect 30 days following the date of publication in the FEDERAL REGISTER.

The complete text of these changes was published in the "Federal Register" of December 30, 1970, 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.

## MERCHANT MARINE SAFETY PUBLICATIONS

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

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

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

### CHANGES PUBLISHED DURING DECEMBER 1970

The following have been modified by Federal Register:

CG–115, CG–123, CG–191, CG–256, CG–257, CG–259, CG–268, CG–323, and Subchapters N, Q and U of Title 46 CFR, Federal Register of December 30, 1970, Part II.