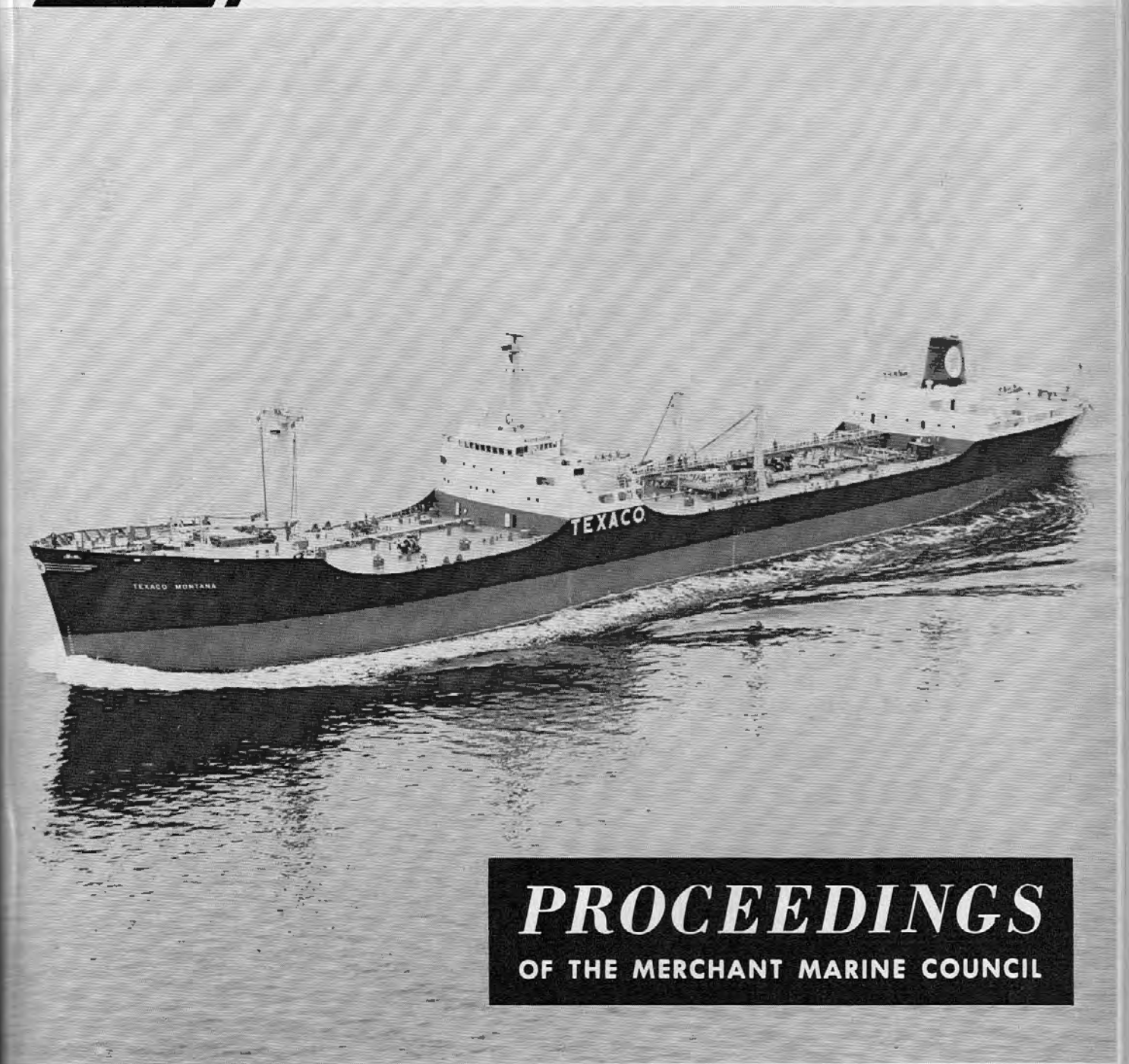
COAST GUARD



PROCEEDINGS

OF THE MERCHANT MARINE COUNCIL

Vol. 26, No. 8 CG-129 August 1969

PROCEEDINGS
OF THE
MERCHANT MARINE COUNCIL

IN THIS ISSUE . . .

Port Security Measures for the Handling of Nuclear-Propelled Ships . . .

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COVERS

FRONT COVER: The *Texaco Montana*, last of a class of five 25,413 deadweight-ton tankers built for Texaco, Inc. A product of the Sparrows Point Shipyard, the vessel has a liquid cargo capacity of more than 8,900,000 gallons and dry cargo capacity of 44,000 cubic feet. She bears the same name as a 14,000 deadweight-ton tanker built for Texaco during World War II and retired from service in 1963. *Courtesy Bethlehem Steel Corp.*

BACK COVER: One part of the complex refueling operation of NS *Savannah* last year. (For further pictures see pages 143 and 145.) Here the internals cask has been removed from the vessel's nuclear reactor and is being transported to a warehouse for further work.

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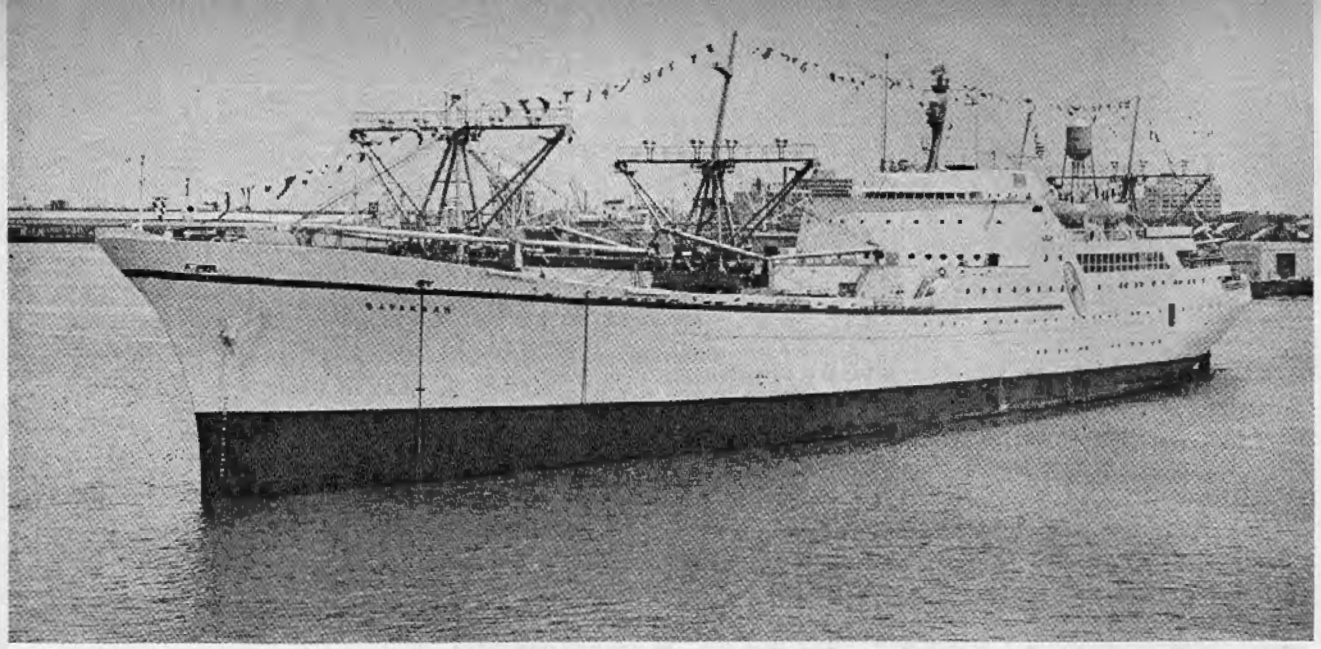

The world's first nuclear merchant vessel, the N.S. Savannah, *since 1961 has served to educate port officials in meeting the unique problems related to atomic power. Here the* Savannah *is seen entering pier E of Todd Shipyards Corp. in Galveston, Tex., for her first refueling operation.*

PORT SECURITY MEASURES FOR THE HANDLING OF NUCLEAR-PROPELLED SHIPS

CDR R. J. Bosnak, USCG

Assistant Chief, Merchant Marine Technical Division, Headquarters

Extracts from a paper presented at the third Inter-American Port and Harbor Conference, Vina del Mar, Chile, November 15–24, 1968.

INTRODUCTION

A NUCLEAR SHIP has the potential for the large-scale release of radioactive materials should there be a breach of both its fuel and primary coolant systems, and a failure of its containment enclosure. While the probability for such a release is indeed small, it is not zero and therefore cannot be completely ignored by those responsible for the safety of ports and surrounding areas. A more probable (but less serious) release of radioactive contaminants can take place through the careless handling of liquid and gaseous wastes. Recognizing these problems, the International Convention for the Safety of Life at Sea 1960 (SOLAS '60), included a chapter containing 12 regulations, and a set of recommendations in annex form which suggest and recommend special considerations in the areas of ship design, containment, power-plant design, shielding, waste handling, fueling, manning, documentation, and ship control.

GENERAL PORT ACCEPTABILITY CRITERIA

Intent

Any comment on the port entry and handling of nuclear ships must be prefaced by a general statement of intent. The people, property, and environment of the port complex must be adequately safeguarded against the possible release of radioactive contaminants without granting carte blanche to impose unnecessary and uneconomic requirements on a ship simply because it is nuclear fueled and not fossil fueled.

Port authorities responsible for the control of ship movement should al-

ways attempt to permit a properly designed, constructed, and operated nuclear ship the same freedom of access and movement a conventionally fueled ship would possess. In the case of specific ships and ports this goal may not always be attainable. Still, it should be clear that the imposition of unnecessary port restrictions increases costs, alienates operators, and hurts the cause of true safety.

PRELIMINARY CONSIDERATIONS PRIOR TO ENTRY

It is reasonable to expect that all nuclear ships will have been designed and constructed to meet chapter VIII of SOLAS '60, and as far as practicable the "Recommendations Applicable to Nuclear Ships" contained in annex C to the 1960 Safety Conference. It is also expected that the applicable codes and regulations of the government of the ship's registry have also been satisfied. The ship's safety assessment, which must be approved by the government of registry, should be made available to the countries to be visited by a nuclear ship sufficiently in advance of any port entry to permit a proper appraisal by the host country. The safety assessment may not always provide the information being sought in complete detail, and time consuming exchanges may be necessary. A sufficient period must be allotted for this evaluation to avoid later embarrassment when operating schedules may have to be changed if approval has not yet been obtained. It is assumed that the safety assessment will describe and analyze that most serious accident whose consequences to the public are not exceeded by any other considered accident. In the United States this accident is referred to as the maximum credible accident (MCA).

TECHNICAL CONSIDERATIONS AFFECTING PORT ENTRY

There are three major tasks associated with the technical appraisal of nuclear ship port entry. The first is

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the establishment by port authorities of acceptable radiation dosages resulting from an accident situation. The second task is the calculation of the shipboard release under accident conditions for each specific port, considering the port's relevant meteorological, hydrological, and topographical conditions, and the comparison of that release with the tolerable radiation dose under accident conditions established by each port.

In the United States the basic stationary siting requirements are contained in the Code of Federal Regulations (10 CFR 100). These requirements have been adapted for the NS *Savannah*. Unfortunately there are no internationally agreed upon values for tolerable emergency radiation dosages, and the actual values used will have to be agreed upon locally or nationally. While national stationary siting criteria should be considered in establishing port requirements for nuclear ships, there is the very important difference of mobility in the case of the ship which can be towed to sea and sunk if necessary. In addition, shipboard containment systems usually have additional backups to the containment pressure vessel such as reactor compartments. Many accident consequence limiting systems are also provided in shipboard plants. The total effect of all these features is to make the relative hazard associated with current marine nuclear plants less than for stationary plants.

The third task associated with the technical appraisal of nuclear ship port entry concerns questioning overall ship safety and the postulated release analysis to see if they are adequate or are lacking. In making such a determination, the following need to be considered:

(a) Construction standards of the primary system.

(b) Containment system employed on the ship and method and frequency of testing.

(c) Method of handling pertinent ventilation systems including use of filters.

(d) Assumptions used in arriving at radioactive content of accidental release.

(e) Review of operations, records, and condition of the ship and reactor by a person duly authorized to carry out such inspections by the government of the port to be visited. The review might include checks of periodic safety system tests, status of conventional navigation and safety equipment, levels of radioactivity about the ship, and verification that the ship complies with information furnished.

(f) Adequacy of accident consequence limiting systems installed.

(g) Adequacy of the training of personnel; the officers and crew should possess the requisite qualifications and have undergone proper training appropriate to their duties in accordance with arrangements approved by the government of registry.

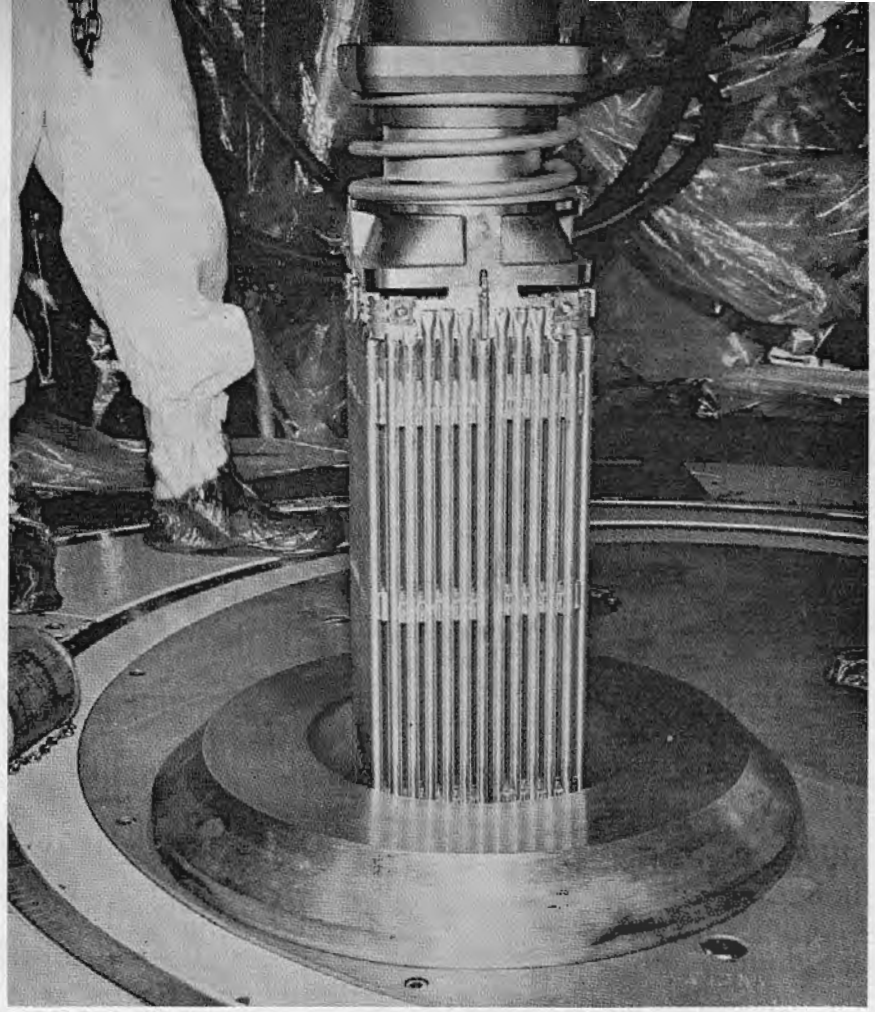
SITE SELECTION

In every harbor there are normally several locations where a nuclear ship might be berthed. To select those most suitable, harbor authorities could make comparisons based on several features of each berth. These features might include factors relative to the probability of an accident occurring due to external causes such as aircraft landing paths and shipping traffic; the effect of environment conditions such as tides and the occurrence of fog; the availability of tugs and fire fighting equipment and the location of water supply, etc. Once the selection of possible sites has been narrowed by the above process, a quantitative analysis should be

made of the effects of the radiation release on the population and surroundings for each possible berth under consideration. The radioactive release from an accident will contain various radionuclides which contribute differently to the exposure doses.

It is most important to have the relative percentage content of those nuclides in the release which are of particular biological significance, such as the isotopes of iodine. Certain facilities such as schools, children's centers, food processing plants, intakes for water and ventilation systems might require special consideration.

If (as will generally be the case) the release to the atmosphere rather than to the hydrosphere is controlling, calculation of the maximum tolerable release at any specific location can be accomplished by using methods for estimating the spread of radioactivity in air such as Sutton's model of atmospheric diffusion. In making assumptions, normally parameters selected represent the most unfavorable possible. The use of overlay patterns showing the exposure doses at varying distances from ship location per release of given radionuclides of a specified activity level is recommended when there are several berths to be considered. Finally, a decision for or against a port entry may hinge on a balance of the number of the population which might be necessary to be evacuated from one area should a MCA occur, and the means required to effect such an evacuation versus the means actually available. It is possible that special institutions near the harbor such as schools and hospitals may prove difficult or unsuitable to evacuate.



When the Savannah *was refueled last fall, she had completed 6½ years of operation on her original fuel supply. In that time she had traveled 330,000 miles and consumed 119 pounds of fuel. A fossil-fueled vessel would have burned 91,000 tons of fuel oil in covering an equivalent distance. Pictured above is one of the* Savannah's *32 fuel elements. During refueling, four of the elements were replaced and the others were shuffled. The elements contain uranium dioxide pellets which yield great quantities of heat when atomic fission occurs.*

SHIP MOBILITY

Radiation exposure to the public can be minimized by: The adequate selection of a berth (as described above) at suitable distances from residential areas; evacuation of the public; removal of the ship. Removal of the ship may be by an emergency propulsion method aboard the ship or by available tugs. Emergency propulsion is not a SOLAS recommendation for a plant whose type is of proven dependability. If tugs are employed to assure mobility, the means for providing tugs of sufficient number and power within the required time will require evaluations. Minimum manning of the nuclear ship while in port and characteristics of the port which might impair mobility such as bridges, locks, water depth, port congestion, etc. must be weighed into how much credit can be given for the feature of mobility.

EMERGENCY CONSIDERATIONS

Several areas of prior preparation are indicated for the handling of emergencies should they occur. The first is the designation of a remote anchorage to which the ship can be taken to remain for a prolonged time without endangering the population. Special arrangements for firefighting,

communications (including the use of multilingual personnel), and security (including controlled access to the vessel and exclusion areas) should be included in detailed plans for emergency action prepared in advance by the port authority.

MISCELLANEOUS PROBLEMS

Repairs to the primary system or breach of containment while in port must be discussed between the operator and the port authority prior to performing these evaluations. Usually major repairs or fuel manipulations will not be required while visiting a foreign port. A method for handling a nuclear vessel, which, because of weather or any other cause of *force majeure*, desires port entry without previous arrangements must be considered and planned for.

PROCEDURES EMPLOYED BY THE UNITED STATES

Domestic Vessels (U.S.)

At this time the N.S. *Savannah* and the *Sturgis* (towed non-self-propelled barge for providing electricity, owned and operated by the U.S. Army) are operating under the U.S. flag. The *Otto Hahn* (West Germany) is also in operation, and other nuclear ships are being planned in various parts of the world. The N.S. *Savannah* and *Sturgis*, prior to a first entry into any U.S. port, have been required to prepare port operating plans which must be approved by both the U.S. Atomic Energy Commission and the U.S. Coast Guard. Each port operating plan contains a description of the port geography, and includes unusual meteorological or hydrological information; a description of mooring locations and transit routes used by the vessel; for each mooring location a description of the low and dense population zones; port emergency plans applicable to mooring locations and transit routes; description and evaluation of the remote anchorage; and an accident analysis for each transit route and mooring location desired. Port reentries are made on the basis of a previously approved plan assuming there have been no modifications. Control by port authorities is the same as that used for conventionally fueled ships. The *Savannah* has been inspected annually as required by SOLAS and she receives at least three reinspections during the year as required by the Coast Guard regulations. The Atomic Energy Commission also has requirements for periodic compliance inspections. Special control inspections other than those just mentioned are not regularly made. Port operating plans for foreign port entry are prepared by the operators of the *Savannah* using the same format and criteria as for U.S. ports. These plans are approved by the U.S. Atomic Energy Commission as well as the cognizant foreign regulatory body.

FOREIGN VESSELS

The operator of a foreign nuclear ship possessing a valid nuclear ship safety certificate who desires that his ship visit a U.S. port will be required to make a request for port entry to the Coast Guard. A copy of the safety assessment must be transmitted with the request, which should be made well in advance of the expected visit. The Coast Guard's approval will depend on its favorable review of the submitted material and the concurrence of the Atomic Energy Commission. The Atomic Energy Commission in its review considers matters of radiological health and safety, common defense and security, and the adequacy of the financial protection and indemnification arrangements which have been made. The U.S. Atomic Energy Commission is preparing legislation to submit to the Congress which would amend its basic statute (act of 1954) so that a foreign nuclear ship could enter the United States without a Commission license. This is not now legally possible. It would also require that the owner or operator of the foreign nuclear ship provide $100 million in financial protection, with the U.S. Government providing $400 million of additional indemnity coverage. This would assure that the total protection which the U.S. public would have would be comparable to that provided domestically, or $500 million.

The location limitation requirements (radiation) mentioned previously for U.S. flag vessels would also apply to foreign flag vessels in U.S. ports.

STATUS OF OTHER EFFORTS ON NUCLEAR SHIP PORT ENTRY (IMCO, IAEA)

In May of 1966 a consultative group of experts on the safety evaluation of harbors and narrow waters convened in Vienna under the sponsorship of IAEA (International Atomic Energy Agency). It was attended by observers from WHO (World Health Organization), Euratom, IMCO, and IAPH (International Authority of Ports and Harbors). The report of this group entitled, "Safety Considerations in the Use of Ports and Approaches by Nuclear Merchant Ships," was considered by the Maritime Safety Committee of IMCO at its 14th session in October of 1966 and its 15th session in March of 1967, and only minor comments were referred to IAEA. It is expected that IAEA will publish the final revised version of the report in the very near future as document No. 27 in the IAEA safety series. When issued, the document is not expected to have legal status but will be a good summary of existing practice for guidance purposes.

SOLAS '60 has provided us with an adequate framework for handling nuclear ships. Each country must evaluate its own port situations and relate the unprobable nuclear accident and its effects upon that port. Proper advance planning can markedly reduce the consequences of any accident situation. Tolerable accident-level dosage and required indemnification protection must also be determined. Hopefully, at some time these can be made consistent throughout the world. ⚓

IMCO ACTIVITIES

INTRODUCTION

TO KEEP THE marine community abreast of international maritime developments, reports of the deliberations and actions of various bodies of the Intergovernmental Maritime Consultative Organization (IMCO) will be published in the PROCEEDINGS from time to time.

A summary of the XIX session of the Maritime Safety Committee follows.

MARITIME SAFETY COMMITTEE (19th Session)

The XIX Maritime Safety Committee of IMCO met from 24 to 28 February 1969 in London. Rear Adm. Charles P. Murphy (USCG) was reelected Chairman and presided over the session. Mr. R. L. Aquirre (Argentina) was reelected vice chairman.

The Maritime Safety Committee as the prime mover of technical matters in IMCO is an extremely powerful force. It charges its subcommittees to perform defined tasks and evaluates the results of their work. Approval of a subcommittee recommendation by the Maritime Safety Committee is prerequisite before the recommendation may be forwarded to the Assembly for vote and possible adoption by the entire membership of IMCO.

The rapidly increasing workload of the Maritime Safety Committee is a positive indicator of the increased role of IMCO in international maritime safety. Of great significance in evaluating the impact of IMCO today is the large number of representatives from international organizations which attend IMCO meetings. Such representation provides a broad input to IMCO deliberations.

As an example of the scope of this cooperation, the last Maritime Safety Committee session was attended by representatives from the following U.N. agencies: International Labor Organization (ILO), Food and Agriculture Organization (FAO), World Health Organization (WHO), International Telecommunications Union (ITU), and by observers from the following nongovernmental organizations in consultative status with IMCO:

International Association of Lighthouse Authorities (IALA),
International Chamber of Shipping (ICS),
International Commission on Illumination (CIE),
International Confederation of Free Trade Unions (ICFTU),
International Electrotechnical Commission (IEC),
International Organization for Standardization (ISO),
International Radio Maritime Committee (CIRM),
International Shipping Federation (ISF).

Those items considered by the Maritime Safety Committee at its 19th session of general interest to the marine industry are next noted for information. The Maritime Safety Committee's actions are not at this time binding on the marine industry. The article "IMCO Activities" published in the May 1969 PROCEEDINGS OF THE MERCHANT MARINE COUNCIL describes the procedures whereby IMCO decisions may become binding upon the marine industry. The following paragraphs are excerpts from the official report of the U.S. delegation to the 19th session of the Maritime Safety Committee which was recently submitted to the Secretary of State.

IMCO CONVENTION AND OTHER CONVENTIONS DEPOSITED WITH IMCO

The Committee noted the status of the IMCO Convention and of the other conventions deposited with IMCO. The Federal Republic of Germany indicated that a number of nations have not yet accepted the International Convention for the Safety of Life at Sea 1960, nor the Regulations for Preventing Collisions at Sea. The Committee directed the Secretary General to contact those IMCO members which have not yet accepted these conventions and urge them to do so.

SUBCOMMITTEE ON SAFETY OF NAVIGATION

The Committee accepted the Subcommittee's recommendation that a "notice board" with the words "bulbous bow" and/or "bow propulsion" should be exhibited when required on each side of the bow and that it should be illuminated at night.

The Committee requested the Secretary General to invite the attention of member governments to the hazard of vessels carrying dangerous goods exhibiting at night in the open sea a red light visible all around the horizon in

contravention of the Regulations for Prevention of Collisions at Sea.

The Committee requested the Subcommittee to examine further the positions of lights and radio beacons at various locations in the Red Sea and to further consider suggestions by IALA regarding the use of quick-flashing white lights and corresponding sound signals by drilling and production platforms.

SUBCOMMITTEE ON LIFESAVING APPLIANCES

The Committee tentatively accepted the recommendation of the subcommittee concerning lifesaving appliances, equipment, and procedures for mobil offshore units for circulation to member governments; however, further work concerning other safety aspects will be carried out by other subcommittees and the changes or clarifications may have to be made in the light of further studies, particularly with regard to definition of the term "Administration."

The Committee decided that proposals for amending regulations 27, 28, and 29 (dealing with lifeboats, liferafts, and buoyant apparatus) of the International Convention for the Safety of Life at Sea, 1960, should be kept as an item of work for the Subcommittee pending the outcome of studies presently being carried out by the Subcommittee on Subdivision and Stability.

The Committee approved the draft recommendations on instructions on survival, and agreed to submit it to the sixth regular Assembly for adoption. The Committee was instructed to prepare more detailed instructions on the following items:

(a) action on arrival of rescue units;
(b) preparation for being taken in tow, and
(c) rescue by helicopter.

SUBCOMMITTEE ON RADIOCOMMUNICATIONS

The Subcommittee was told to continue its study of the Maritime Distress System and to submit final recommendations for immediate as well as future improvements of the system.

The Committee adopted the proposed amendments to chapters IV and V of the International Convention for the Safety of Life at Sea, 1960, as follows:

(a) Regulation 2(b) of chapter IV concerns terms and definitions.
(b) Regulation 9(3), 9(h), (i), 13(c), 13(f), and 15 of chapter IV concerning radio equipment.
(c) Regulation 11 of chapter IV and regulation 12 of chapter V concerning direction finders and radio equipment for homing.
(d) New regulation 21 of chapter V concerning the International Code of Signals.

The Committee considered and approved procedures for amending and updating the International Code of Signals, as recommended by the Subcommittee on Radiocommunications. The Secretary General was requested to submit it to the Assembly for adoption. The Committee recommended that governments: (1) Encourage the use of the Code at appropriate opportunities and, (2) supply comments by users for further evaluation. The Committee invited the Assembly to adopt the Subcommittee's recommendations pertaining to safety communication facilities for production platforms and similar units.

The Committee agreed that the list concerning maritime satellites should be brought to the attention of member governments for consideration and preparation for the future space conference which will be convened under the auspices of the International Telecommunications Union. It should also be conveyed to the ITU and ICAO for information. It was fully agreed that the Subcommittee should continue investigating further potential operation of maritime satellites.

The Committee adopted the form which will provide a standard means of reporting exemptions from radio requirements as required by regulation 5 of chapter IV of the Safety Convention. In addition, the Secretariat was requested to invite contracting governments to provide information on how various governments interpret the relevant regulations.

SUBCOMMITTEE ON FIRE PROTECTION

Recommendation 20 of SOLAS '60 concerns safety of tanker lifeboats. In this regard and at the urging of the United States, the Committee endorsed the view of the Subcommittee that the intent of this recommendation would be pursued satisfactorily by introducing considerable improvement in the structural fire protection and fire extinguishing equipment for tankers. It was also concluded that no steps need be taken towards the installation of special lifeboats on tankers. The Subcommittee is developing fire safety requirements for the construction and equipment of new tankers.

The Soviet delegation reiterated their intent to submit to the Subcommittee on Fire Protection and the Subcommittee on Lifesaving Appliances information on fire resistant lifeboats. The French raised a question concerning the accessibility of survival craft in large tankers. This matter was referred to the Subcommittee on Fire Protection and the Subcommittee on Lifesaving Appliances.

A booklet on shipboard firefighting was approved by the Committee and the Secretariat was asked to disseminate it to member governments.

The Committee approved the Subcommittee's recommendations on fire safety measures for hydrofoil boats. The recommendation applies to new hydrofoil boats and is intended to provide a level of safety equivalent to structural fire protection and extinction requirements contained in chapter II of SOLAS '60.

AD HOC SUBCOMMITTEE ON THE REVISION OF THE SIMLA RULES

The Committee decided to refer back to the ad hoc Subcommittee various papers submitted to the Committee in connection with geographical areas which special trades should cover under any new agreement.

It was agreed that governments issuing certificates under the Simla rules should, in principle, assume responsibility for the certificate. The Committee, however, requested the ad hoc Subcommittee to consider this matter further.

It was also considered that parts IV and V of the rules proposal by India were not directly connected with safety of life at sea and therefore would not be appropriate for consideration by the ad hoc Subcommittee. However, the ad hoc Subcommittee was informed that should it consider it necessary to include these requirements in the agreement the matter could be referred to other appropriate organizations, such as WHO and ILO.

SUBCOMMITTEE ON SHIP DESIGN AND EQUIPMENT

The Committee approved the report of this Subcommittee.

SUBCOMMITTEE ON SUBDIVISION AND STABILITY

The Committee approved the reports of the 8th and 9th sessions of the Subcommittee which also outlined the work of the 7th and 8th sessions of the Working Group on the Stability of Fishing Vessels and the 1st session of the ad hoc Group for the study of external forces affecting ships. It was noted that substantial progress had been made in formulating proposed amendments to regulations of chapter II, part B of the 1960 Safety Convention concerning subdivision and damage stability requirements for passenger ships.

The Committee also approved stability requirements for ships carrying grain which were incorporated into the grain regulations as equivalents to chapter VI of the 1960 Safety Convention proposed by the Subcommittee on Containers and Cargoes. The Subcommittee was requested to draw up eventually recommendations on stability to be supplied to masters of grain ships in compliance with the grain regulations when sufficient knowledge in this field is available.

SUBCOMMITTEE ON CONTAINERS AND GARGOES

The Committee approved the proposed grain regulations as equivalent to the provisions of chapter VI of the 1960 Safety Convention. It was thought, however, that considering the dynamic complex effect of the forces of shifting grain at sea it would be preferable to obtain results from the use of the new regulations over a period of time before they are formally incorporated into the convention as an amendment.

The Committee also approved for transmittal to the Assembly a further draft resolution recommending that various governments similarly apply the principles of the grain regulations to cargo ships of less than 500 gross tons.

The Liberian delegate circulated a paper under the date of 27 January 1969 concerning the loss of the grain ship *Ithaca Island* on or about 11 October 1968. The main thrust of this paper was that the Liberian Government was pressing for adoption and application of the new amendments to chapter VI as soon as practicable. An interesting note contained in the paper was to the effect that "regrettedly it (*Ithaca Island*) did not participate in the AMVER System operated by the U.S. Coast Guard."

The Subcommittee asked for and the Committee approved a request that certain aspects of their work with containers be referred to other subcommittees for their consideration.

The Secretary General was requested to proceed with the preparation of a consolidated draft of the existing studies of safety in maritime transportation with respect to containers and their carriage by sea.

SUBCOMMITTEE ON THE CARRIAGE OF DANGEROUS GOODS

The Committee approved the report covering the 14th and 15th sessions of the Subcommittee. It was noted that certain problems associated with the operating of internal combustion engines below decks have been referred to the Subcommittee on Fire Protection.

The Subcommittee considered the question of marking the names of dangerous substances on the outside of containers as indicated in chapter VII of the 1960 Safety Convention. France had proposed that the convention be amended to discontinue the need for such markings. However, the matter was disposed of by the Committee's instruction to the Subcommittee to review the application of regulation 4 of chapter VII and make recommendations to the Committee accordingly.

The Committee approved for inclusion in the International Maritime Dangerous Goods Code proposed amendments subject to certain editorial adjustments to the text. Canada raised a question concerning the problem posed by fumigating ships' holds with toxic insecticides which had further adverse effects on the carriage of edible cargo. The Committee instructed the Subcommittee to further examine this matter taking into account all information available.

356-539—69——2

SUBCOMMITTEE ON MARINE POLLUTION

The Committee approved the amendment to the International Convention for the Prevention of Pollution of the Seas by Oil, 1954, by the required majority. The Subcommittee was authorized to make, at its next session, necessary editorial adjustments, but they were cautioned not to introduce any change in substance. The following was particularly directed to their attention:

In article III(b)2, the term "effectively clean" should be clarified.

The Secretary General was requested to circulate as soon as possible the proposed amendment to all governments concerned.

The Committee considered a statement from the International Chamber of Shipping suggesting that vessels be allowed to discharge oil within the applicable limits up to 15 miles of land. There was very little support for this. A compromise proposal of 25 miles failed to gain any added support, and as a result the 50-mile prohibition was carried by a vote of eight to four with two abstentions. The U.S. delegation led in the fight to retain the 50-mile limit.

A proposal by the Government of Lebanon was introduced which would prohibit the discharge of any oil into the Mediterranean Sea. It was the consensus of the Committee that the amendments as adopted, would effectively meet the Lebanese desires. The Committee noted the outstanding U.N. General Assembly resolutions concerning pollution (A/Res/2414 (XXIII), A/Res/2467 (XXIII), and A/Res/2398 (XXIII)). The Subcommittee was instructed to study these resolutions and to make proposals for the prevention and control of pollution of the sea, land, and air by ships and vessels and other equipment operating in the marine environment. The U.S. delegation pointed out to the Committee that these terms of reference were broad indeed and that IMCO was entering into an expanded and vastly complicated new field.

The Committee agreed that the Subcommittee should cooperate closely with the joint groups of experts on the scientific aspects of marine pollution (IMCO, FAO, UNESCO, WMO). The Committee noted that the Secretariat in connection with the forthcoming U.N. Conference on Problems of Human Environment had prepared a contribution to the relevant activities of the Organization for inclusion in the U.N. Secretary General's report on this subject.

FIRST SESSION OF THE JOINT IMCO/ILO COMMITTEE ON STANDARDS FOR TRAINING OF OFFICERS AND CREW

The Committee considered the report of the recent session of the Joint Committee and approved "Document for Guidance—1968" and its attachments and requested the Secretary General to submit it to the next IMCO Assembly for adoption and subsequent circulation to all member states, contracting governments and states which participated in the 1960 Safety Convention. The two organizations will circulate the documents together. The Subcommittee on Safety of Navigation at its 8th session should consider additional items to be put before the Joint Committee for further discussion and should additionally consider training in the use of inflatable liferafts. The Subcommittee should also formulate preliminary views for IMCO members of the Joint Committee. The date for the next session of the Joint Committee should be that as agreed to by the two organizations.

AMENDMENTS TO THE INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1960, REGARDING SURVEY AND TESTING OF SHIPBORNE NAVIGATIONAL EQUIPMENT

The Committee considered the proposed amendments to the relevant sections of regulations of chapter I and to the form of ships' certificates which will be required following the mandatory carriage of radar echo sounders and gyro compasses.

The Committee, in accordance with article IX of the International Convention for the Safety of Life at Sea, 1960, requested the Secretary General to transmit the proposed amendments to the Assembly for its consideration and to contact the governments of that convention for the purpose of information.

MANUAL ON SEARCH AND RESCUE OPERATIONS AT SEA—PROGRESS MADE BY AN AD HOC GROUP

The Committee received the initial draft of the first section of the manual which the ad hoc Group prepared at its first session. After an invitation by the Chairman of the U.S. delegation, the Committee agreed that the ad hoc Group should meet again at U.S. Coast Guard Base, Governors Island, New York, N.Y., in order to complete the manual. The Secretariat will circulate to all IMCO members the draft form as soon as possible for subsequent consideration at the next MSC. The Committee thanked the United States for their hospitality in hosting this meeting.

SAFETY STANDARDS FOR AIR-CUSHION VEHICLES AND OTHER NOVEL TYPES OF CRAFT

The Committee instructed the Subcommittees on Lifesaving Appliances, Radiocommunications, and Safety of Navigation to expedite their studies relative to novel type craft. The U.S.S.R. raised a question concerning the issuance of safety certificates to novel types of craft. The Committee took the view that its subsidiary bodies would develop minimum standards for such novel types of craft,

and this would facilitate the eventual issuance of safety certificates.

CODE OF SAFETY FOR FISHERMEN AND FISHING VESSELS

The Committee approved the final draft of the Code of Safety for Fishermen and Fishing Vessels, Part A—Safety and Health Practice for Skippers and Crews—prepared by the Joint FAO/ILO/IMCO meeting of consultants.

The Secretary General was authorized to proceed with the publication of part A of the Code as soon as the final draft was similarly approved by the FAO and ILO.

Part B of the Code—Safety and Health Requirements for the Construction and Equipment of Fishing Vessels—was also considered. The representative of the ILO expressed a willingness to cooperate in the preparation of this part of the Code.

It was decided that as far as further procedures for the preparation of the draft of part B of the Code within IMCO were concerned, the matter should be referred to a group composed of experts from Norway, U.S.S.R., and the United Kingdom, and to the following Subcommittees: Safety of Fishing Vessels (newly formed); Safety of Navigation and Radiocommunications, and Life Saving Appliances. This draft will be eventually submitted to FAO and ILO, inviting their contributions.

The Committee noted the information which has been submitted by various governments concerning hospital facilities, and rescue and repair services on fishing grounds.

PREPARATIONS FOR THE INTERNATIONAL CONFERENCE ON TONNAGE MEASUREMENT

The Committee noted with satisfaction the preparation being made for the International Conference on Tonnage Measurement to be held in London from 27 May to 23 June 1969.

UNIFORM INTERPRETATION OF RECOMMENDATIONS ON THE TREATMENT OF SHELTER-DECK AND OTHER "OPEN" SPACES

The Committee considered two proposals put forth by the U.S. delegation relating to the uniform interpretation of the application of paragraph 12 of the "Recommendation on the Treatment of Shelter-Deck and other 'Open' Spaces."

The U.S. delegation argued that IMCO had a moral responsibility to the shipowners of the world since the shipowners had been urged to adopt the dual-tonnage scheme which resulted in safer ships. When this had been done various authorities assessed tonnage fees on the higher figure. The United States maintained that IMCO had an obligation to go on record against this imposing of extra financial burdens on those who were seeking to increase safety. After much discussion the matter could not be resolved and was taken to a vote. The vote resulted in a tie, seven for and seven against. Under the IMCO rules of procedure, a tie vote necessitated in the vote being taken a second time. If at that time the vote was still tied the measure was deemed to have been defeated.

DEFINITION OF NOXIOUS CARGOES OTHER THAN OIL

The Committee considered a request from the Legal Committee and the Subcommittee on Safety of Navigation to define noxious or hazardous cargoes other than oil. The matter was referred to the Subcommittee on Marine Pollution. Advice will be sought also from the U.N. Joint Group of Experts on the Scientific Aspects of Marine Pollution.

CLEANING OF STRUCTURAL MEMBERS IN THE TANKS OF VERY LARGE TANKERS

This matter was raised by the Netherlands delegation and drew attention to the difficulties and dangers involved in cleaning structural members of very large tankers. Action was deferred until the next session of the MSC. In the meantime the Committee invited member governments to study the matter further and to submit papers for consideration at its next session. The ICS (International Chamber of Shipping) promised a further statement concerning this problem in the future.

CARRIAGE OF LIQUEFIED GASES IN SPECIALLY BUILT SHIPS

France raised a problem concerning the carrying of inflammable liquefied gases and asked to know whether associated vessels should be considered as tankers within the meaning of the 1960 Safety Convention. The matter was referred to the Subcommittee on Ship Design and Equipment.

REQUIREMENTS FOR CARGO SHIPS CARRYING LORRIES AND MORE THAN TWELVE DRIVERS

France suggested commercial lorry drivers accompanying their vehicles on board ferries should not be regarded as passengers within the meaning of the 1960 Safety Convention. There was some sympathy for this; however, the U.S. delegation, along with a majority of the Committee, felt that such an arrangement might lead to the interpretation that other groups of personnel on board, such as passengers in trains, private automobile drivers,

wives of crew members, and attendants of livestock could be treated in a similar fashion. The matter was put over until the next session and members were invited to submit relevant papers.

CONSIDERATION OF ANY RELEVANT DECISION OF THE TWENTY-FIRST SESSION OF THE COUNCIL AND FOURTH EXTRAORDINARY SESSION OF THE ASSEMBLY

The Committee noted the resolutions adopted by the Fourth Extraordinary Assembly on technical and safety matters. It also noted that due to the shortage of time the Assembly deferred to its sixth session consideration of proposed amendments to chapters II and III of the Safety Convention approved by the Committee at its 17th session, and the following four recommendations approved by the Committee at its 18th session:

Recommended practices for navigational lights;
Positioning of navigational lights;
Establishment of fairways, through off-shore resource exploration areas; and
Dissemination of information, charting; and manning of drilling rigs and production platforms.

PROPOSED WORK PROGRAM OF THE COMMITTEE FOR THE PERIOD 1970/71

Work Program—the Committee considered the work program for the next budgetary period submitted by the Secretary General and agreed upon a work program for each of the subsidiary bodies listed in order of priority.

Convening of international conferences—the Committee rank in order of priority their estimation of forthcoming international conferences:

Revision of the Regulations for Preventing Collisions at Sea, 1960;
Container traffic;
Marine pollution; and
Safety of fishing vessels.

Although the Committee felt that the work of the subsidiary bodies had not yet progressed sufficiently to envisage an international conference on any specific subject during the next budgetary period, it nevertheless recognized that developments during that period might necessitate the holding of such conferences. Accordingly, a 3-week conference period in 1971 has been included in the planning for that period. It was agreed, however, that if an international conference is not held, the period should be used for technical meetings.

It was agreed that an international conference for the revision of the Rules of the Regulations for Preventing Collisions at Sea, 1960, could be held in 1972 and requested the Secretary General to submit this proposal, through the Council, to the 6th session of the Assembly.

EXTENSION OF THE EXISTENCE OF SUBSIDIARY BODIES

The Committee extended the life of the subsidiary bodies for an additional year as follows:

Subcommittee on Safety of Navigation.
Subcommittee on Radiocommunications.
Subcommittee on Lifesaving Appliances.
Subcommittee on Subdivision and Stability.
Subcommittee on Safety of Fishing Vessels.
Subcommittee on Fire Protection.
Subcommittee on Ship Design and Equipment.
Ad Hoc Subcommittee on Revision of SIMLA RULES
Subcommittee on the Carriage of Dangerous Goods.
Subcommittee on Containers and Cargoes.
Subcommittee on Marine Pollution.
Ad Hoc Group on Search and Rescue.

QUESTIONS RELATED TO THE OCEAN DATA ACQUISITION SYSTEMS (ODAS)

The Committee received a request from the International Oceanographic Commission (IOC) for examination of certain technical questions related to the operation and use of oceanographic buoys and similar devices. The matter was referred to the Subcommittee on Safety of Navigation.

UPDATING THE PUBLICATION ON "POSITION REPORTING SYSTEMS"

The U.S. delegation suggested, as there had been significant additions to the position reporting arrangements by various governments since the last publication by IMCO of the booklet on reporting systems, it would be useful to update the publication and produce a revised version. It requested the Secretary General to take the necessary action.

ACCESS TO HOLDS IN LARGE SHIPS

The French delegation submitted a paper outlining the difficulties and dangers involved in entering holds of large ships, particularly ore carriers. The Committee had insufficient time to study this paper and it deferred consideration to its next session.

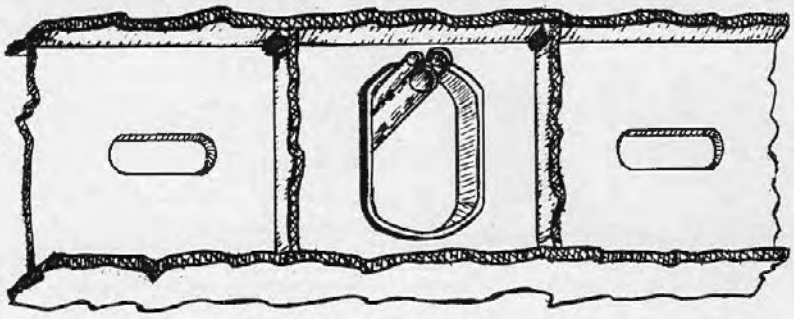
SYMPOSIUM ON NUCLEAR SHIP PROPULSION

The Federal Republic of Germany proposed that a 1970 Symposium on Nuclear Ship Propulsion by IAEA in cooperation with IMCO should be held in Hamburg in the spring of 1970 under the cosponsorship of IAEA, IMCO, and KEST (Society for Research and Promotion of the Use of Nuclear Energy in Shipbuilding and Shipping, Hamburg). The Secretary General was invited to submit to the Council this proposal together with the financial implications. ⚓

DECK

SHIP CONSTRUCTION

Q. Where bilge piping of a passenger vessel runs through a box or duct keel as illustrated, what provisions against flooding of holds due to bottom damage is required?



A. Where bilge piping is located in a duct keel, a nonreturn valve shall be fitted to the end of the pipe in the compartment in which it serves.

Q. What are the emergency signals used for fire alarm, dismissal from fire stations, boat station or boat drill, and the signals used to lower and stop lowering boats?

A. Fire alarm: Continuous rapid ringing of the ship's bell for at least 10 seconds supplemented by the same signal on the general alarm bells.

Dismissal from fire stations: Three short blasts of the whistle supplemented by the same signal on the general alarm bells.

Boat station or boat drill signals: More than six short blasts and one long blast of the whistle, supplemented by the same signal on the general alarm bells.

To lower boats: One short blast of the whistle. To stop lowering boats: Two short blasts of the whistle. Dismissal from boat stations: Three short blasts of the whistle.

Q. Does the heeling magnet, once adjusted, require change as the vessel sails from one magnetic latitude into another? Explain your answer.

A. The heeling magnet, even though once adjusted, requires change as the vessel sails from one magnetic latitude to another because the heeling magnet corrects not only for the permanent vertical magnetism of the vessel but also for the vertical induced magnetism as well.

From H.O. 226, *Handbook of Magnetic Compass Adjustment and Compensation*

ENGINE

Q. (a) What effect does increasing current have on the temperature of wire?

(b) What effect does temperature have on the resistance of a copper wire?

(c) How does the size (cross-sectional area) of wire affect its resistance?

A. (a) Increasing the current in a copper wire will increase its temperature.

(b) An increase in temperature of a copper wire will increase its resistance.

(c) The length remaining the same, the resistance of a wire is inversely proportional to its cross-sectional area.

Q. Most standard fuel oil sprayer plates are designated by four-digit numbers such as 51–40. What do these digits represent?

A. The first digits represent the size of the drill used in making the orifice in the sprayer plates. The last two digits represent the ratio of the total cross-sectional area of the tangential slots to the cross-sectional area of the orifice.

Q. (a) How are "plain" boiler tubes installed?

(b) What are "stay tubes" and how are they secured?

A. (a) Boiler tubes are installed by expanding them into the tube plates. For this purpose the boiler tubes are placed in position so as to extend about 3/8 inch into the combustion chamber and the smokebox. A tube expander is then used to swell the ends of the tube into the holes in the tube plates. The end in the combustion chamber is also beaded over.

(b) Stay tubes are used to stay the tube plate of the combustion chamber and the front end of the boiler. For this purpose the smokebox end of the stay tube is swelled and both ends are screwed. The hole for the stay tube is tapped through both plates with a long tap, and the stay screwed in from the front end. The end in the combustion chamber is then beaded over, as well as the front end.

Safety Award

The Annual Fleet Safety Award of Lykes Bros. Steamship Co., Inc., is presented to the officers and crew of the SS Mason Lykes *at ceremonies held in New Orleans last April.*

Front row left to right: O. O. Richards, Deck Util.; C. E. McNab, Bos'n; N. Wright, Jr., Steward; L. Gray, Messman No. 3; E. Stallworth, Cook and Bkr.; A. Rasmussen, A.B.; A. P. Laky, A.B.; W. Booker, Chf. Cook.

Back row left to right: W. Jantzen, 2d Elect.; R. L. Johnson, O.S.; L. R. Ozen, O.S.; F. Gomez, Wiper; P. V. Clairveaux, D.E.M.; Capt. R. A. Ohlund, Master; M. Johnson, Mess. No. 2; Captain G. E. Price, Asst. Manager, Marine Division; Capt. C. H. Waring, Manager, Accident Prevention Division; B. L. Evans, Chief Mate; C. L. Bossle, Commissary Supt.; W. Barker, Port Engineer; W. Labranch, 1st Asst. Engr.

Fourteen ships of the global fleet of Lykes Bros. Steamship Co., Inc., completed 1968 free of lost-time injuries, during which the fleet had an exposure of 21,859,248 man hours.

The safest ship in the entire Lykes fleet of 59 ships in 1968 was the SS *Mason Lykes,* one of the 12 automated vessels of the Gulf Clipper Class, which joined the fleet in 1966 and won a commendation for its safety record during its first year of operations. The Annual Fleet Safety Award was presented to the ship and its crew. Safety commendation certificates were presented to the other 13 ships.

The Lykes fleet had a 6.4-percent increase in man hours of exposure in 1968. The lost-time injury ratings of the National Safety Council were used in rating all ships of the fleet, and the top ship, the SS *Mason Lykes,* earns the right to display the green cross symbol of the National Safety Council so long as she retains her No. 1 position in the fleet. ⚓

Inflatable Liferaft Training Films

Two training films dealing with the launching and operation of inflatable liferafts are now available. Both films are entitled "Survival" and both have a running time of approximately 14 minutes.

Inflatable liferafts are required equipment aboard most American-flag ships. Chapter III, regulation 18 of the International Conference on Safety of Life at Sea, 1960, requires the various maritime nations to take practical, reasonable steps with a view to insuring that crews of ships on which liferafts are carried are trained in their launching and use. Up to the present there has been a knowledge gap in the subject of shipboard handling and the emergency use of inflatable liferafts. The "Survival" films are intended to help fill that gap.

One film deals with the Sea-Jay Elliot liferaft and was produced by the C. J. Hendry Co., 139 Townsend Street, San Francisco, Calif. 94107. The other film depicts the Switlik liferaft and was produced by Switlik Parachute Co., Inc., 1325 East State Street, Trenton, N.J. 08607. ⚓

Merchant Marine Statistics

There were 1,060 vessels of 1,000 gross tons and over in the active oceangoing U.S. merchant fleet on May 1, 1969, 87 more than the number active on March 1, 1969, according to the Merchant Marine data sheet released in June by the Maritime Administration, U.S. Department of Commerce. The increase reflected the return to operation of ships tied up by the Atlantic and gulf coast longshore strike.

There were 86 more active and 90 fewer inactive ships in the privately owned fleet as compared to the number of ships in these categories March 1. Five new ships were delivered; five were received from the Government in exchange for four ships traded in to the Government, all of which were acquired for the trade-in purpose during the last 2 months. One ship was transferred to U.S. flag; seven were transferred to foreign flag; one was removed from the privately owned fleet listing since it is being used for special service, and seven were sold for scrapping. The total privately owned fleet decreased by four to 961.

The Maritime Administration's active fleet increased by one to 172, and the inactive fleet decreased by 23 to 901 since March 1. Four ships were acquired from private ownership in exchange for five ships transferred to private ownership, four were sold for nontransportation use, and 17 were sold for scrapping. The U.S. owned fleet declined by 22 to 1,073, and the total U.S. flag merchant fleet declined by 26 to 2,034.

Five ships were delivered from construction during March and April: The *American Lark* to U.S. Lines from Sun Shipbuilding and Dry Dock Co., Chester, Pa.; the *Idaho* to States Steamship Co. from Avondale Shipyards, New Orleans, La.; the *Korean Mail* to American Mail Line from Newport News Shipbuilding and Dry Dock Co., Newport News, Va.; the *Mormacsea* to Moore McCormack Lines, Inc. from Ingalls Shipbuilding Division, Litton Systems, Inc., Pascagoula, Miss.; and the *Willamette* to Willamette Transport Co. from Bethlehem Steel Corp., Sparrows Point, Md. Six conversions were reported as completed during the 2-month period, and contracts were reported for conversion of two additional ships. The number of large oceangoing ships under contract for construction or conversion on May 1 decreased by 9 to 70. ⚓

Rules For Offshore Mobile Drilling Units

There are more than 20 different types of offshore drilling rigs in service, and nearly as many designs have been tried and discarded. Experience, combined with design skill, has enabled engineers to construct the very large structures required by the oil industry, but until recently formal rules and standards did not exist. In 1965 the offshore drilling industry (operators and drilling-unit builders and designers) demonstrated their willingness to create formal rules by initiating a series of conferences when it was agreed that the technical staff of the American Bureau of Shipping (ABS) should compile rules. These rules are based on many years of survey experience, engineering principles and data developed by the ABS special committee on offshore mobile drilling units.

The results of the Society's efforts are now available in a new publication, *Rules for Building and Classing Offshore Mobile Drilling Units.* These are the first industry-wide standards for designing and maintaining surface-type, self-elevating, and column-stabilized units operating under all conditions throughout the world. Particular attention is given to safety features, including the provision of adequate firefighting equipment and helicopter landing facilities. A short but concise explanation of the shallow-water wave theory forms an important appendix.

Of particular interest is the section on column-stabilized drilling units of the type which depends on the buoyancy of widely spaced vertical columns for flotation and stability. It would appear that, if the overall structural frame of the unit is to be stress-analyzed as a space frame, it is an ideal problem for the computer. These new rules are an important addition to the store of knowledge concerning offshore drilling units and will prove of particular value in reducing the incidence of casualties which have been creating such a problem for off-shore operators. ⚓

MA Issues Report

The Maritime Administration announced that copies of the report, "United States Flag Containerships and U.S. Flag Ships with Partial Capacities for Containers and/or Vehicles," as of December 31, 1968, are available from its Public Information Office in Washington, D.C. ⚓

TO THE RESCUE

One of the greatest traditions of the sea is the seaman's willingness to risk his life or ship in order to rescue a fellow man in distress. Although this tradition must never be abandoned, those men involved in such rescue operations should always proceed with sufficient caution so that possible danger to the rescuing ship and crew be kept to a minimum. The following exemplifies the way in which a marine casualty can be *doubled* in magnitude as a result of inadequate navigational preparation and position fixing by the rescuing vessel.

A freighter, steaming into a foreign port to discharge cargo, received a distress call from a grounded vessel. Upon receiving this message, the inbound freighter altered course and began making preparations to assist and to effect a rescue.

The stranded ship could be clearly seen, and those aboard the rescue vessel did not verify her position. The Master of the rescue vessel reckoned the stricken ship to be aground on the outermost of two reefs which exist off this particular shore. This was done visually without plotting and without further radio contact with the distressed vessel. The vessel was not, however, on this outermost reef; she was aground on the shoal closest to shore, as events which followed would prove.

The rescuing Master planned to pass 1½ miles offshore and within one quarter mile of the grounded vessel. He proceeded on his intended course while the crew readied the lifeboat and a boat crew was mustered. During this period, visual and radar bearings were taken, but a fix was never established. Radar ranges were taken, but should not have been relied upon to the extent which they were since the shore consisted of a series of rocky headlands of various heights which jutted into the sea. Consequently, no information with regard to distance was definite. The Master, in his zeal to make a quick rescue, failed also to consult Sailing Directions for the area. These would have warned him of dangerous and shifting currents and the need to approach with caution. The fathometer was inoperable, yet no additional effort was made to take soundings as the ship entered shoal waters at near full speed.

When the time finally came for a boat to be lowered, the Captain reduced speed; but before the lifeboat was in the water, the rescue ship was also hard aground. She stranded on the outermost reef, ironically in approximately the same position where the Master had assumed the stranded ship to be.

Several attempts were made to free the vessel, the last attempt being successful. However, extensive damage inflicted to the engine spaces made it impossible for the engineers to provide sufficient steam for propulsion. The vessel drifted shoreward coming to a final rest near the vessel whose crew she was going to rescue. Both vessels and their cargoes were a total loss. The crews were finally removed from the stranded vessels by Navy ships. Fortunately, there were no deaths or personal injuries.

Proper preparations, including consulting all available information on the unfamiliar waters and accurate position determining by the rescuing vessel could have prevented the compounding of this casualty. ⚓

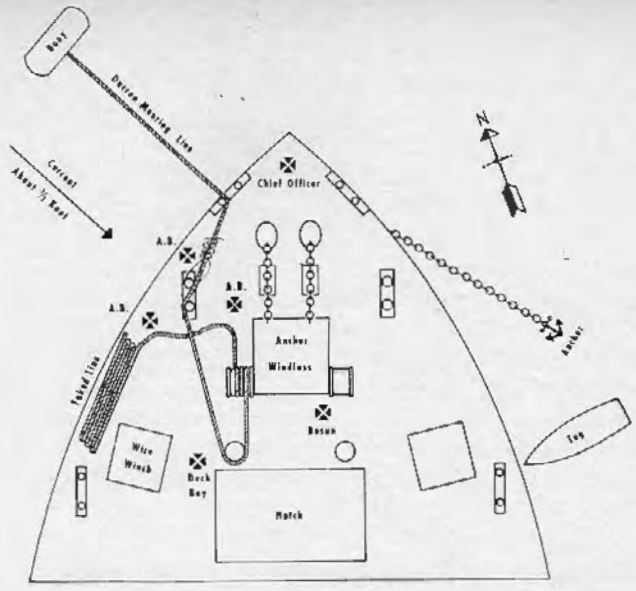
AN AVOIDABLE ACCIDENT

The safe way to use synthetics is to avoid putting excessive strain on them. All of us may not have learned this lesson. Here is the story of how an AB on a foreign-flag vessel got his leg broken.

The ship was mooring in a submarine mooring overseas. As shown in the drawing, the starboard anchor was down with four shots in the water. A 9-inch Dacron was on a head buoy. Orders were given to hang the line off. A double Dacron stopper was used. The Bosun, at the steam throttle of the windlass, backed the windlass a little to see if the stopper would hold. It held until all but one turn was thrown off, then the line slipped through the stopper and ran. It flipped around and struck the man who had thrown it off the gypsyhead and broke his leg.

The Master, in analyzing the accident, mentioned several contributory factors but gave as the basic cause, "too much strain on the line."

This accident could have been avoided by relieving the strain on the line. How do you relieve a strain on a line? It all depends on the particular circumstances. Slack the anchor, use a tug, run another line, use



Synthetic Lines

the ship's engines, or use the mooring wires. Whenever possible, the mooring machines should be used in preference to mooring hawsers.

Because of the Master's distance from the line he is generally not able to evaluate the strain as well as the officer on spot. The responsibility for informing the Master when lines are under excessive strain rests therefore on the officer in charge. ⚓

From: *Safety Bulletin, Chevron Shipping Company*

AMENDMENTS TO REGULATIONS

Title 46 Change

Chapter I—Coast Guard, Department of Transportation

MISCELLANEOUS AMENDMENTS TO CHAPTER

The International Convention on Load Lines, 1966, became effective on July 21, 1968. The Coast Guard regulations which implement the convention were considered by the Merchant Marine Council, after due notice of proposed rulemaking, as item PH 1–68 in a public hearing held on March 25, 1968 (CG–249, p. 1 to 120). These regulations contained in the main in 46 CFR Part 42 (Subchapter E—Load Lines) were published in the "Federal Register" of July 12, 1968 (33 F.R. 10042–10077). Since the publication certain classification societies, interested industry organizations and the Coast Guard have further reviewed the regulations. Certain deficiencies were noted. This document contains amendments to the regulations which will:

a. Delegate to approved assigning authorities the authority to approve the structure, equipment, and protection of hull openings which are required by these regulations to be approved prior to the assignment of load lines;

b. Clarify the intent of the regulations by using the same words and phrases as are contained in other vessel-inspection regulations in 46 CFR Chapter I (certain words and phrases came from the Load Line Convention and in a number of instances are not compatible with phraseology used in other Coast Guard regulations) ; and

c. Eliminate unnecessary repetition of certain requirements.

d. A new § 42.20–3 is added to part 42 which contains almost verbatim IMCO's Resolution A 172 (ESIV), dated November 28, 1968, entitled, "Recommendation for Uniform Application and Interpretation of Regulation 27 of the International Convention on Load Lines, 1966." This is done since the technical regulations in part 42 are copied from the regulations of the convention.

The changes in the regulations made by this document are editorial in nature or relate to interpretative rules or rules of agency procedure. Therefore, compliance with the administrative procedural requirements in 5 U.S.C. 553 (regarding notice of proposed rulemaking and the effective date requirements) is unnecessary with respect to these changes.

These amendments shall become effective on the date of publication of this document in the "Federal Register."

The complete text of these changes was published in the "Federal Register" of June 5, 1969, 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.

Commandant Issues Equipment Approvals

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

Those interested in these approvals should consult the "Federal Registers" of June 18 and 19, 1969, for detailed itemization and identification.

FUSIBLE PLUG

The regulations prescribed in subpart 162.014, subchapter Q, specifications require that manufacturers submit samples from each heat of fusible plugs for test prior to plugs manufactured from the heat used on vessels subject to inspection by the Coast Guard. A list of approved heats which have been tested and found acceptable during the period from May 15, to June 15, 1969, is as follows:

Lunkenheimer Corp., Cincinnati, Ohio 45214, HEAT NOS. 756, 757, 758, and 759.

AFFIDAVITS

The following affidavit was accepted during the period from June 15, to July 15, 1969:

Atlas Valve Co., 280 South Street, Newark, N.J. 07114, VALVES [1]

[1] Body materials limited to ASTM A-216 grade WCB and ASTM B-61 only. Resilient diaphragm-actuated valves limited to maximum outlet pressure of 100 p.s.i. at 475° F.

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 3–69

22 May 1969

Subject: Z Nomograph Method of Calculating Available GM

PURPOSE

The purpose of this circular is to publish an acceptable short form method of calculating available GM.

BACKGROUND

Section 93.10–1 of the Coast Guard Rules and Regulations for Cargo and Miscellaneous Vessels states, in part, . . . information shall be prepared . . . and furnished to the master. . . . This information shall be such that the master can, for any condition of loading, by rapid and simple process, obtain accurate guidance as to the stability of the vessel. . . . This regulation requires the inclusion of a suitable short form for the calculation of a vessel's stability and freeboard in trim and stability booklets for general dry cargo vessels.

DISCUSSION

The Z nomograph short form eliminates the need for multiplication and division, thus providing a simple, rapid, and accurate method for calculating available GM.

Many of the present short forms require tedious arithmetical operations as well as considerable averaging to place the cargo in arbitrary layers. Container ships with many cargo layers in addition to sizable deck loads often operate near their required GM in the fully loaded condition, thus a more accurate method is needed to determine the available GM.

The Z nomograph short-form method requires additional preparation prior to its approval and issuance to the master of said vessel. Nonetheless, the end product is easy to use (requires only a straight edge to read the nomographs) and provides a more accurate stability evaluation.

ACTION

Enclosure (1) contains instructions on how to prepare the nomographs for calculating available GM. This method is an acceptable short-form method for calculating stability, and may be used in trim and stability Booklets. Enclosure (2) is an acceptable format for the short-form part of such a booklet.

The use of the enclosed method is not mandatory since the presentation of stability information in any other simplified form which effectively complies with current regulations is also acceptable.

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

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, 1969 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).
115	Marine Engineering Regulations and Material Specifications (3–1–66). F.R. 12–6–66, 12–20–67, 6–1–68, 12–18–68.
123	Rules and Regulations for Tank Vessels (5–2–66). F.R. 12–6–66, 12–9–67, 12–27–67, 1–26–68, 1–27–68, 2–10–68, 4–12–68, 6–1–68, 10–2–68, 12–18–68, 12–28–68.
129	Proceedings of the Merchant Marine Council (Monthly).
169	Rules of the Road—International—Inland (9–1–65). F.R. 12–8–65, 12–22–65, 2–5–66, 3–15–66, 7–30–66, 8–2–66, 9–7–66, 10–22–66, 12–23–67, 6–4–68.
172	Rules of the Road—Great Lakes (9–1–66).
174	A Manual for the Safe Handling of Inflammable and Combustible Liquids (3–2–64).
175	Manual for Lifeboatmen, Able Seamen, and Qualified Members of Engine Department (3–1–65).
176	Load Line Regulations (1–3–66). F.R. 12–6–66, 1–6–67, 9–27–67, 7–12–68, 6–5–69.
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, 12–23–67.
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.
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323	Rules and Regulations for Small Passenger Vessels (Under 100 Gross Tons) (1–3–66). F.R. 12–6–66, 1–13–67, 12–27–67, 1–27–68, 4–12–68, 11–28–68, 12–18–68, 12–28–68.
329	Fire Fighting Manual for Tank Vessels (7–1–68).

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CG–176, "Federal Register" June 5, 1969, part II.

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