PROCEEDINGS

OF THE MERCHANT MARINE COUNCIL

UNITED STATES COAST GUARD

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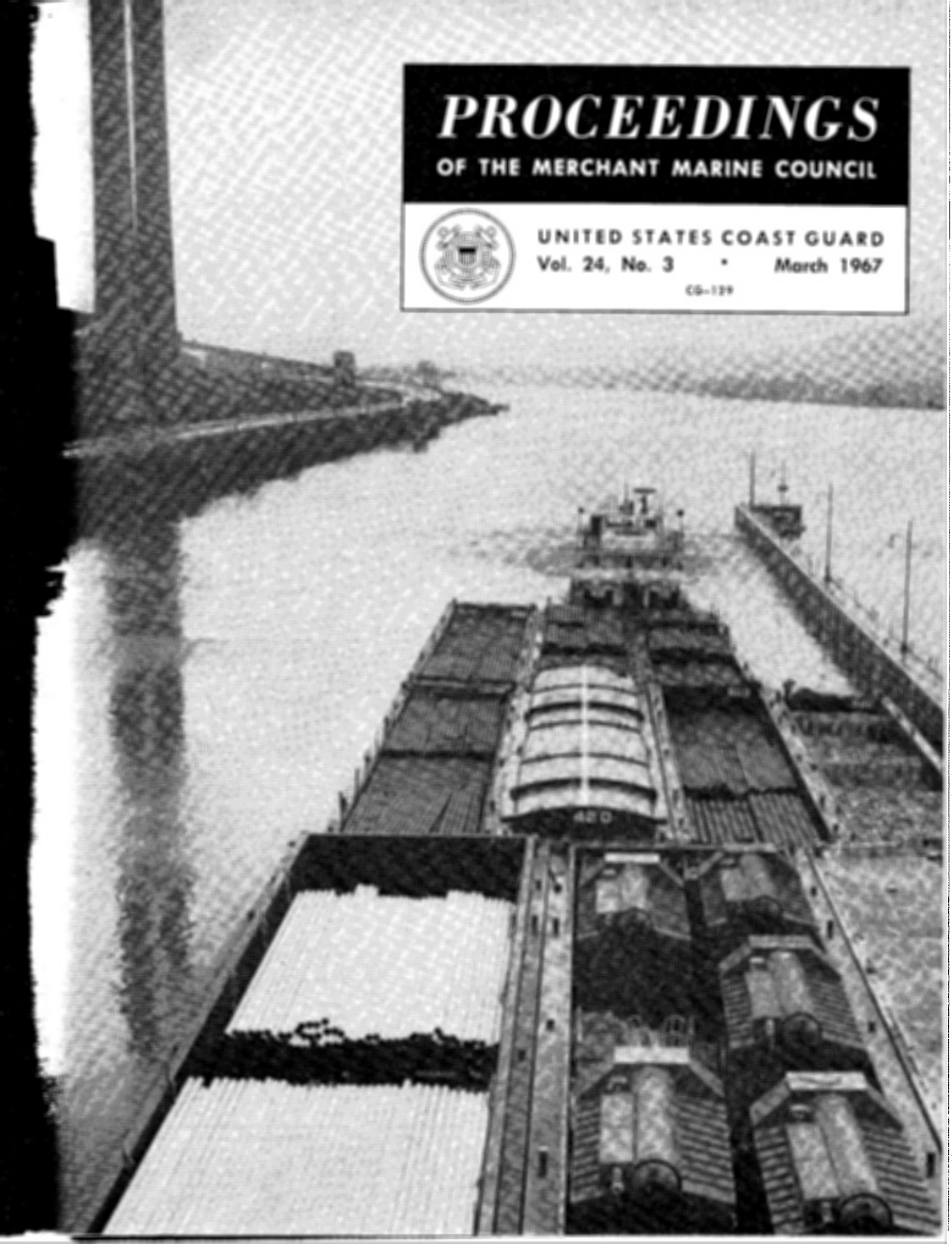

PROCEEDINGS

OF THE

MERCHANT MARINE COUNCIL

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Lt. Comdr. Alvin Jones Arnett, USCG, *Editor*

T. A. DeNardo, *Assistant Editor*

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

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Coast Guard goes Transportation

A new era in transportation in the United States ...ned on January 16, 1967, with the swearing in of ...an S. Boyd as the first Secretary of Transportation. ...e Cabinet-level Department of Transportation will ...come officially operational April 1, 1967. Thus, the ...g-needed effort to end diffusion among several Fed... agencies concerned with transportation will reach ...e fruition stage as the various existing components of ...e new Department are drawn under a common um...lla from their many bases within the Government.

If transfer goes according to schedule, the first day of ...pril 1967 will see the Coast Guard leaving the Treas...y Department after an association of better than 1¾ ...nturies.

Other existing bureaus to be moved are the Bureau of ...blic Roads, the St. Lawrence Seaway Corporation, and ...e Great Lakes Pilotage Association from the Depart...ent of Commerce; the Alaskan Railroad from the De...rtment of Interior; and the Federal Aviation Agency.

Certain functions of existing agencies are to be separated from their present affiliation and incorporated in the new Department. The functions of the former Under Secretary of Commerce for Transportation will move from Commerce to Transportation. Civil Aeronautics Board aircraft accident investigation duties, Interstate Commerce Commission safety functions, and Army Corps of Engineers drawbridge and marine oil pollution control will also become Department of Transportation functions.

In announcing the appointment of Secretary Boyd, President Johnson characterized him as "the best equipped man in the country" for the position.

Mr. Boyd, 44, is a native of Florida and a graduate of the University of Virginia Law School. In 1965 he became Under Secretary of Commerce for Transportation, having formerly served as member and chairman of the CAB and member and chairman of the Florida Railroad and Public Utilities Commission. ⚓

Secretary Alan S. Boyd is sworn in at the White House.

GREAT LAKES RULES: Proposals for Change

Captain William C. Foster, USCG

From an address before the Annual Meeting of the Joint Dominion Marine Association and Lake Carriers Association

THE U.S. COAST GUARD is working to combine the United States Inland, Great Lakes, and Western Rivers Rules of the Road into a single set of rules based, as nearly as practicable, upon the 1960 International Regulations for Preventing Collisions at Sea. I will review here the impact of the current proposal upon the Great Lakes Rules, but first I will touch briefly on the developments that have led to this effort. The history of the St. Lawrence Seaway and that of the growth of industry in the Great Lakes Basin must be compared with the development of the Rules of the Road. Past events will give some indication that the time to adjust some aspects of the Rules is now; they will also give reasons for this. A recommendation of the 1960 Conference on Safety of Life at Sea, which has been incorporated within current Coast Guard policy, will tell how this adjustment should be made. Finally, a review of the actual changes will tell specifically what the proposed adjustment will entail.

The history of the St. Lawrence River and the Great Lakes is tied to man's quest for a better life through reduced transportation costs. The hunt for a western ocean route to the Orient brought Jacques Cartier around the north side of Newfoundland in the year 1534. On 10 August, the feast day of St. Lawrence, he cleared Belle Isle Strait and entered the river now bearing that saint's name. Cartier later called it the River of Kanata, from an Indian name, but usage of the saint's name prevailed. The explorer's westward journey was halted in 1535 at Lachine Rapids.

A century later men no longer searched for a direct waterway to the Orient; instead, they sought convenient transportation for the flourishing fur trade. In the latter half of the 17th century work was started by the French on a canal to bypass nonnavigable sections of the St. Lawrence. The first 25 miles were completed by the British during the following century. This system accommodated only small, shallow-draft boats.

The first major manmade waterway in the area was the Erie Canal. In 1825 it connected Lake Erie to the Hudson River and turned many small settlements on that lake into booming cities. By 1848 Canada had completed canals linking Lake Erie to the sea for vessels drawing up to 9 feet. About 7 years later an American company completed a canal at Sault Ste. Marie, linking Lake Superior with the rest of the Great Lakes.

The middle of the 19th century was a period in which the use of steam vessels was becoming more and more important. Until then sailing vessels had not had major difficulties from collisions; a simple rule requiring them to alter course to the right when danger of collision existed was sufficient to keep them out of trouble. Up to that time governments had not found it necessary to establish rules requiring lights on those vessels. In 1846 Parliament granted the Lords of the Admiralty the authority to make regulations for lights to be exhibited by steam vessels. This authority was soon broadened to cover all classes of vessels. The existing regulations and the British Steering and Sailing Rules, which had become fixed by law, were enacted by Congress for U.S. waters in 1864. These rules served as international rules until July 1897. In the meantime, steam vessel traffic on the confined waterways of the Great Lakes had increased to the extent that it appeared safer to require a central range of lights using an all round after range light and to prescribe that whistle signals be exchanged between vessels in all weathers. These provisions were included in the current Great Lakes Rules, which were enacted and became effective during the winter of 1895. The first International Rules were drafted in Washington during 1889, but did not go into effect until more than 2 years after the Great Lakes Rules.

It is interesting that the current Great Lakes statutory whistle signal requirements, "One blast to mean,

'I am directing my course to starboard,' " etc., are worded identically with those employed in the original International Rules; but, it amounts to an apparent likeness in form and a difference in substance. This occurred because the Supervisory Inspectors established Pilot Rules in 1871 requiring the whistle signals to be answered by approaching vessels, and to be sounded in all weathers. In the context of the original International Rules, "directing" one's course meant "altering" one's course, while in the Great Lakes Rules it has become an indication of intent, regardless of actual alteration of course.

From the turn of the century to the 1950's the Great Lakes area grew phenomenally. It became the center of the North American steel and auto industries and continued as the center for commodities. After World War II there developed a shift of the steel industry to the coasts so that cheaper foreign ore could be utilized. The recently opened Labrador mines could not supply the Great Lakes steel industry as competitively as desired because of high transportation costs.

The opening of the St. Lawrence Seaway in April 1959 changed this. It made Labrador ore highly competitive, hence it slowed the decentralization of the steel industry. The Seaway contributed to the growth of many ports on the lakes, but caused some to decline in importance. It helped the economy in many areas by attracting industry resulting from lower transportation costs to world markets.

The St. Lawrence Seaway made the Lower St. Lawrence, the part in which Jacques Cartier sailed, accessible to the Great Lakes Fleet. The isolation of those vessels has ended. The masters and pilots of some vessels belonging to members of the Dominion Marine Association and of some U.S.-flag vessels have found it necessary to use two sets of rules of the road. The Seaway has also brought salt water ships to the Lakes, and made it necessary for masters of foreign vessels to become thoroughly familiar with the Great Lakes Rules.

Since the middle of the 19th century there have been oceangoing vessels on the lakes; however, up to 1959 their insignificance in both size and numbers did not in any way alter the effectiveness of the Great Lakes Rules. Today the number of seagoing vessels encountered on the Great Lakes during any voyage in season is impressive; during the 1966 season, at least 637 such vessels traded on the Great Lakes according to records maintained by the Shipping Federation of Canada. In addition, at least 21 Canadian and American lakers may transit the seaway and navigate under the International Rules. This leaves 187 Canadian and 235 American lakers of over 1,000 gross tons operating solely on the lakes. Thus 61 percent of the major vessels which traded on the Great Lakes during the 1966 season operated under both International and Great Lakes Rules. Because the Canadian Department of Transport requires deck officers on Canadian lakers to pass an examination covering the International Rules, officers on more than three-quarters of the major vessels on the Great Lakes have had to learn both sets of rules. This warrants action to bring the Great Lakes Rules as close to the International Rules as practicable.

The Governments of both Canada and the United States have accepted the Convention and the International Rules of the Road which were drafted at the 1960 Safety of Life at Sea Conference. This implies an acceptance of the Recommendations found in the final Act of the Conference. The Recommendations stress, among other things, that the Contracting Governments should endeavor to bring all special local rules which prescribe lights, shapes, and signals for vessels in as near agreement as may be practicable with those in the International Rules. We have an official reason as well as a logical reason to study the Great Lakes Rules for possible changes making them easier to assimilate.

The form of the Great Lakes Rules could be made to correspond with that of the International Rules. The White Act, or 1895 form of the present Great Lakes Rules, was partially based upon the 1890 International Rules. The latter underwent an extensive revision in 1948 and many modifications in 1960. Cross-reference between the two sets of Rules is now difficult; unnecessary differences in wording without differences in substance appear.

Four decades ago there were few differences in substance between the two sets of rules. The 1928 and 1948 amendments to the Great Lakes Rules and the 1948 revision of the International Rules have multiplied the original differences. To facilitate learning both sets of rules, some of the substance of the Great Lakes Rules could again be made to follow the International Rules more closely.

The recommendation of the 1960 SOLAS Conference furnishes a good starting point for any change to the rules. Since the elimination of differences is desirable, it is expedient to start with the basic International Rules, and to provide certain exceptions to them.

The most important exception appears to be in the meaning of whistle signals, including the danger signal. The Proposal for Great Lakes Rules would continue the present whistle signals of intent as opposed to the International rudder signals.

Next are a group of exceptions that Great Lakes masters and pilots maintain are needed for smooth and safe operation in fog. These include:

(1) the application of the steering and sailing rules and the use of intent signals when vessels are not in sight,

(2) a three-blast fog signal to avoid confusion with the one- and two-blast intent signals,

(3) the elimination of the three-blast backing signal,

(4) a requirement that the otherwise optional whistle signal for

a vessel at anchor be sounded every 3 minutes, and

(5) a requirement that a vessel hearing the fog signal of another whose position is not ascertained reduce speed to bare steerageway. Here I would like to interject that this positive requirement of Canadian Great Lakes Rule 19 and United States Great Lakes Rule 15 to reduce speed, is considered by the Coast Guard to be better than the International equivalent, and accordingly has been incorporated into the proposal for unified United States Inland Rules of the Road.

Exceptions to the International Rules are also added affecting lights on vessels underway and at anchor; these preserve the existing Great Lakes Rules, and are not of a sufficiently operational nature to make navigation for oceangoing vessels any less safe.

Next, certain exceptions, or actually additions, apply to maneuvering in rivers where a starboard-to-starboard meeting may be necessary. These are certainly permitted under the International Narrow Channel Rule, which requires a vessel to adhere to her own starboard side when safe and practicable to do so. The additions expand that rule and permit a two-whistle passing to be made when a descending vessel navigates around a sharp bend to the right, or at other times when current or conditions warrant it.

These exceptions or additions to the International Rules should not be too difficult for the oceangoing skipper to learn. They are reasonable and not unduly long. To make them lengthy or unreasonable would make the Governments of Canada and the United States appear aloof to the 1960 SOLAS Conference recommendation concerning lights and signals and aloof to the unnecessary burden on those navigating the lower and upper sections of the St. Lawrence.

The most important analysis of the proposed Great Lakes Rules is, of course, a review of operational changes that would result. They center around whistle signals, including definitions of the lengths of the blasts and certain new signals to be used in fog. First of all, a short blast is defined as one approximately 1 second in duration, while a prolonged blast is from 4 to 6 seconds. The new whistle signals for use during restricted visibility are a three-blast signal for a vessel at anchor, consisting of a short, a prolonged, and a short blast; a four-short-blast fog signal for pilot boats; a three-blast signal consisting of a prolonged and two short blasts for vessels towing, vessels unable to maneuver by reason of occupation, and vessels engaged in fishing; and a four-blast signal of a prolonged and three short blasts for the last vessel of a tow, if manned. The proposal would also require a vessel aground to sound a bell, but would permit her to sound her whistle if necessary.

Please note that there is no attempt to add any new one- or two-blast signals to the Great Lakes Rules. The new three- and four-blast whistle signals for certain circumstances in fog may be the subject of much discussion; however, it might be helpful if they were viewed this way—they pertain to vessels that are different from most with respect to maneuvering characteristics, and some of them cannot be identified by sound signals under the current Great Lakes Rules. The usual situations under the Great Lakes Rules are not being changed. The proposed three-blast signal for a vessel at anchor in fog, the short-prolonged-short-blast signal, has received some comments. These stress that the signal could, if carelessly sounded, be mistaken for the signal of a vessel underway in fog. If this should happen, the pilot of an approaching vessel might mistake an anchored vessel, which must be avoided, for a vessel underway moving slowly on either approximately the same course or on a reciprocal course from his own, either of which must also be avoided. The subsequent attempt to exchange whistle signals of intent should indicate the true status of an anchored vessel. Because of the difference of immediate capabilities of a vessel underway and a vessel at anchor it is advantageous for the vessel at anchor to sound the correct signal; it is anticipated that a signal consisting of a 1-second blast, a 5-second blast (which is the average length of a prolonged blast), and a 1-second blast will be given correctly. Further, this signal will probably be timed by automatic devices in most instances. Because of the strikingly different lengths of the two types of blasts, the signal would very likely have less chance of being mistaken for three blasts of equal length than a bend signal would have of being mistaken for a single blast indicating an intent to pass port to port.

Other operational changes are not in fact significant, for they would not change what is being done on the lakes today—these include incorporation of the narrow channel rule, and a provision that in a crossing situation the vessel which is to starboard shall act to avoid collision when it appears that action by the giving-way vessel alone is insufficient. Today on the Great Lakes the privileged vessel in a crossing situation is required to maintain course and speed until the danger signal is sounded; the proposal would make that vessel's action independent of the sounding of the danger signal, but would still require the giving-way vessel to stop or come right when it is sounded. This results in a stronger crossing rule, and allows the master of the privileged vessel to maintain course and speed when sounding the danger signal well in advance of the time collision is imminent.

The above changes are a proposed compromise between the International and Great Lakes Rules. They would follow the International Rules closely in form, but dominantly follow the Lakes Rules in substance. We are well aware of the excellent safety record of Lakes shipping; we are also aware that the bulk of the actual

(Continued on page 70)

Inland Waterway Safety:

Indirect Costs of Accidents

Ralph A. Guffey, Safety Director, A. L. Mechling Barge Lines, Inc.

A Marine Section, National Safety Council Paper

SAFETY AS APPLIED upon the Inland Waterways is confined to construction specifications, operating rules and regulations, and rules regarding personnel safe practices.

Construction specifications of barges and towboats are administered by both the American Bureau of Shipping and U.S. Coast Guard. Operating rules and regulations arise from joint conferences of the Western River Advisory Panel to the U.S. Coast Guard. The U.S. Department of Labor promulgates rules regarding the safety of longshoremen and those workers engaged in shipbreaking and repair. Rules regarding personnel operating safety are industry originated with two organizations. The American Waterways Operators and the Inland Waterway Safety and Health Association, devoting attention to this phase of safety.

The 20 members of the Inland Waterway Safety and Health Association meet bimonthly to review and discuss accidents and personal injuries. Safety films, posters, and visual aids are originated and distributed to the membership, and an attempt is made to coordinate the safety activities of member companies. The safety committee of the American Waterways Operators originates safety posters and cosponsors with the Marine Section of the National Safety Council, the Marine Safety Contest.

These activities constitute the extent of safety as applied to the Inland Waterways. A measure of the success of these agencies in reducing personal injuries is found in National Safety Council statistics and graphs showing the severity and frequency rate of accidents by industry. The Marine Industry as a whole stands third highest of all industries with an accident frequency rate of 29.29 and a severity rate of 190 days being charged per injury for 3,104 reported injuries. Those companies participating in the National Safety Council Marine Contest have a 13.12 frequency rate with no statistics shown for severity rate. The 13.12 frequency rate would place them in 33d instead of 41st position of the marine industry as a whole. Since the average frequency rate for all industries is 6.45, the rate of the participating companies—while proving that some safety is better than none—emphasizes the need for extensive safety effort, and to accomplish further reduction of injuries and accidents involving equipment damage or loss, effort other than what has been exerted in the past must be made.

We have an abundance of regulatory agencies but unless the purposes of rules and regulations are fully understood, complied with, and enforced * * * they will not insure safety. Furthermore, it is also obvious that meetings of industry safety committees, and our session here today, do not produce the ultimate in safety results.

Why then, if the industry has recognized the need for safety as is evidenced by the production of all the rules and regulations we have today, and by the countless hours industry committees have devoted to safety, have they failed to produce the desired results?

I believe that the main reason is a rather simple one: We have failed to educate management on the importance of safety.

A large segment of our industry looks upon safety as a necessary nuisance instead of a necessity, and to many people—including management as well as operating personnel—safety is OK as long as it causes no delays, inconvenience, or doesn't cost anything.

Safety, as a word, has many definitions. Because what constitutes safety to you may be meaningless to

someone else, it is easily seen that the misunderstanding of the importance of safety will be denied, unless some common denominator is present to cause cohesion of safety effort or commonness of purpose.

We will dispense with the humanitarian, legal, or other motives for safety, since these motives alone do not form this cohesion. Our common denominator is costs, and rare is the company that is not interested in costs.

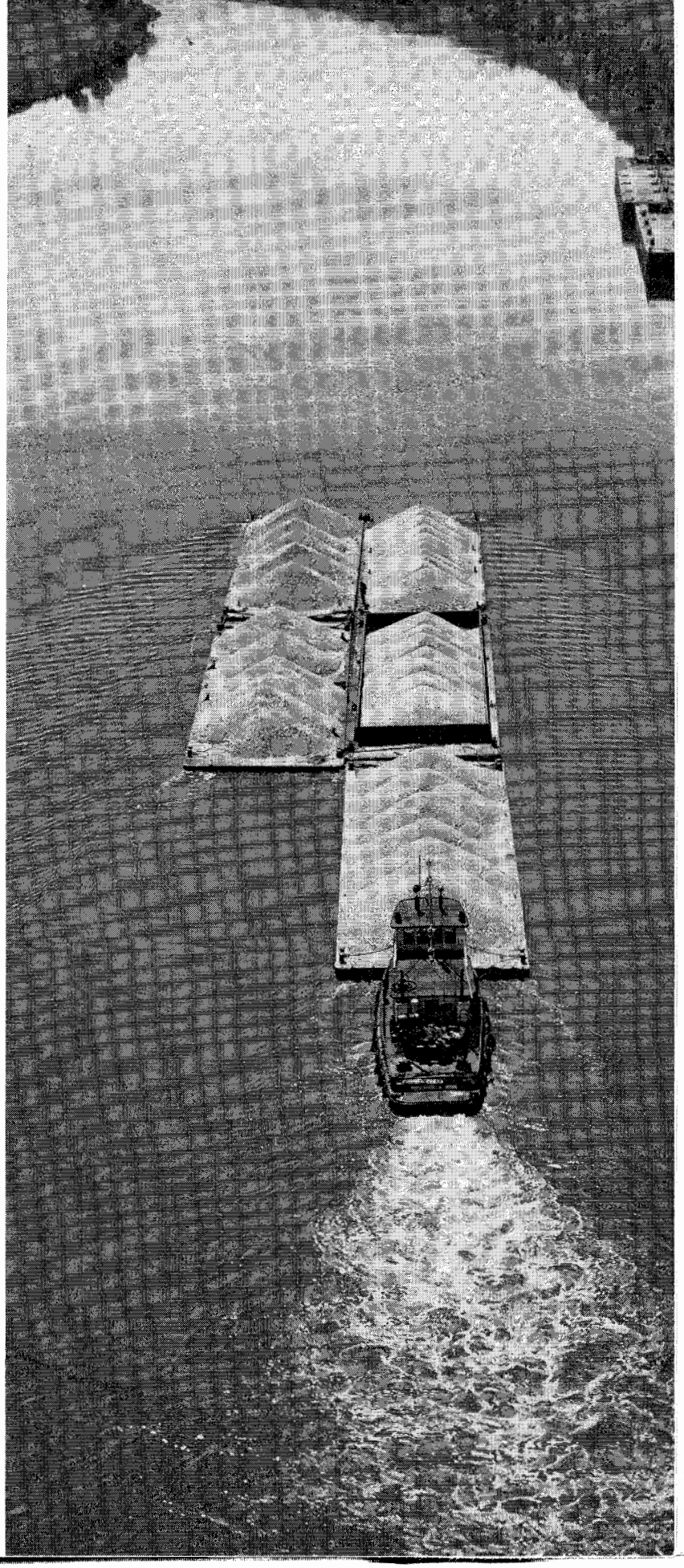
When a company has high personal injury and equipment damage, they, by economic necessity, become motivated by increased insurance costs or legal implications This leads to the activation of safety interest or in setting up a safety program.

A measure of that company's understanding of the importance of safety will be reflected in the program setup and the company support given to the person who is to assume direction of this program

Companies that have recognized that safety goes beyond the conventional motives, and have unified safety with all phases of their company operations, prove daily that when the economic role of safety is recognized there is increased operating efficiency and income

This unification has various names such as hazard control, loss control, risk management, total-loss control, or other titles that recognize the fact that the company profits by eliminating or reducing loss potential. Where this loss potential or "total-loss" approach is recognized you will find unrestrictive support from top management who have placed safety in an effective overall concept.

Because safety overlaps all phases of operations, full safety effectiveness cannot be made by setting up a safety program or department devoted solely to personnel safety when operations, maintenance, insurance, traffic, or sales operate under different safety motives. The overlapping of responsibilities, duplication, or lack of efforts result in a conflict of safety purpose. Safety cannot be separated from these functions, but must be



drawn together, where the recognition of hazards, elimination of hazards, protection against hazards, evaluation of risks, assumption of risks, and transfer of risk is made. This drawing together is the beginning of the "total-loss" concept.

To reduce accident loss, we must be able to pinpoint these losses by recognizing and trying to eliminate all the possibilities for loss within the total operation.

How do we measure these losses? In building up total accident costs we must, in addition to considering "direct" costs, measure the "indirect" costs.

Indirect costs are the costs most often ignored in our accounting because they are the costs which are hidden, and not easily measured, but they are present in every personal injury, accident to equipment, or damage to property.

"Direct costs" are easily recognized. The cost of medical attention, hospital care, maintenance, legal and insurance costs, and claim settlements are some of these costs generally associated with injuries.

I would suggest that you sit down with your accountant and ask him to pinpoint your company's present method of determining all the costs of a particular injury or damage to equipment. If equipment lost-time, lost barge revenue, and towboat lost-time is not included in this analysis, then I believe you are not measuring the "total loss" cost of accidents.

Because ton-mile production and cost-per-ton-mile is the normal method of computing towing rates or establishing operating costs, it is important that "cost-per-minute" time losses arising from accidents to personnel or damage to equipment not be hidden in the various accounting procedures of the company's bookkeeping. Since our purpose in accident loss prevention is to recognize and control all the possibilities for loss within the total operation, it will not be possible to pinpoint these losses, or to spot operating inefficiencies unless we compute towboat and barge costs in the smallest increment, "cost-per-minute" time losses.

For example, if we had a personal injury requiring hospitalization of a deckhand, aboard a 15-barge tow, we would, in addition to assuming all the direct costs of this injury, lose barge revenue and decrease towboat ton-mile production.

How would we measure the lost barge revenue arising from this accident? A simple way would be to divide the total number of barges the company operates during the year into that year's total revenue. This will give you individual barge revenue per year. By breaking this revenue into daily, hourly, and minute increments we can convert hidden operating lost time into actual lost barge revenue.

To continue this example: If we have 100 barges that produce $4 million revenue per year, each barge produces $40,000 in revenue per year, $110 per day, $4.58 per hour, or 7¾ cents per minute.

If this 15-barge tow is delayed 2 hours taking care of the injured man, using this formula, we multiply $15 \times \$4.58 \times 2$ hours equaling $137.40.

If our towboat costs us $1,400 per day to operate we would have $116.66 ton-mile-production lost time for the 2 hours. Adding $116.66 to the $137.40 "lost barge revenue," we have a hidden loss of $254.06 to our equipment in indirect cost.

If we do not add these indirect costs to each injury or equipment damage that caused delay time, these costs will not be pinpointed but will be buried somewhere in overall operating costs.

It can be seen from this example, that these "hidden" lost times are just as important as keeping track of lost time attributed to lock and fog or other delays. The latter delays are not directly controllable, but the majority of accidents can be controlled by focusing attention on their causes. There are, in addition to the costs I have exampled, other costs which must be considered, and I think we have to be careful in trying to apply some magical formula to obtain an easy answer. The formula you use should apply to your size of operation, wage factors, cost of materials and supplies, since these will not be the same for all companies. Remember, we are trying to sell or educate management on the true purpose and importance of safety. They must respect our figures, and we must be able to substantiate their reliability.

To obtain a basis for your figures, you will have to run time studies on deck crewmembers for the various duties they perform. For instance, do you know how much time is required to face up or unface a particular boat? How long it takes to pick up and place a barge in tow? How long to make a coupling? This time must be considered, for if a three-man crew is normally assigned to these duties, and are forced to do without the services of their injured deckmate, any increase in normal time for the crew to perform these functions will be reflected in towboat lost ton-mile-production time, and lost barge revenue.

The safety department cannot do the job alone and it is obvious that if loss-prevention programs are to be effective they must have sustained support from all phases of management. How do you get this support from management?

Many companies have obtained this support by means of committees. They have established executive or policy committees which review and evaluate the overall safety program and the company's operation. This committee should include those people from top management who can establish policy, and those who will be responsible for administering these policies.

The controller, insurance manager, safety director, and directors of operation and maintenance should be on this committee. It is important that this committee be as small as possible and meetings held regularly.

A general safety committee should be set up which includes the execu-

(*Continued on page 70*)

Jury Rigged Explosion

Lt. Comdr. George Conrad, USCG

THE LARGE TANKER had just docked at a company refinery in a medium size U.S. port. Crewmen busily began turning valves, making necessary connections, preparing to receive a highly volatile liquid cargo.

Shortly after loading had commenced, an alert oiler on watch went temporarily topside to secure potable water valves. He smelled smoke, called to the Chief Pumpman on the main deck for help, and proceeded into the smoky interior of the living quarters. In the Chief Pumpman's room they found two bulkhead calendars ablaze, one beneath a closed porthole, with paint blistering and about to ignite. Risking personal injury, the fire was knocked out by hand. Due to quick action and the unusual absence of an airport drapery, the fire was confined to a scorched bulkhead and the loss of two "art" calendars.

Why had it happened? The appearance of the room was "perfectly normal," it was reported. A radio was playing (a common practice of the Chief Pumpman was to leave it on), the fans were operated normally, nothing seemed disturbed. Except there was a fire. The only answer that appeared reasonable was that it must have been set. In light of a recent dispute aboard ship, this seemed logical, particularly since the individual involved in the dispute slept in the same room. It fit. The Coast Guard Investigating Section was called.

There were some suspicious "clues" that gave indication that perhaps it was not "set." They centered around the radio. It was a "jury rigged" installation, a Rube Goldberg type of arrangement that immediately aroused suspicion. The antenna wire was hanging suspiciously, directly in the middle of one burned bulkhead area, and it was bare in that spot. The power supply was of two different types of wire, proper size but longer than the law provides and apparently spliced twice, another violation of the electrical engineering regulations.

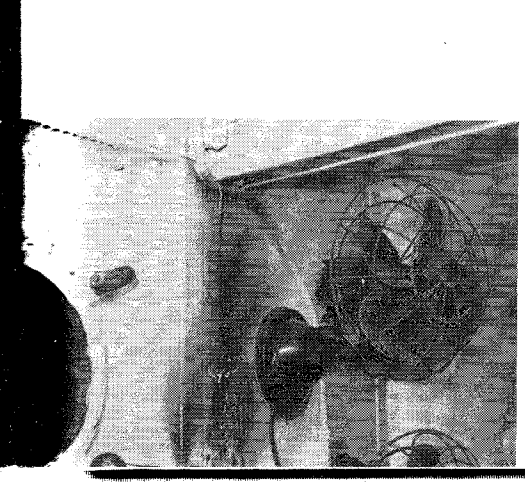
However suspicious, the radio played normally and was found to contain no grounds that would allow the ship's DC potential to escape up the antenna to cause the calendar to blaze.

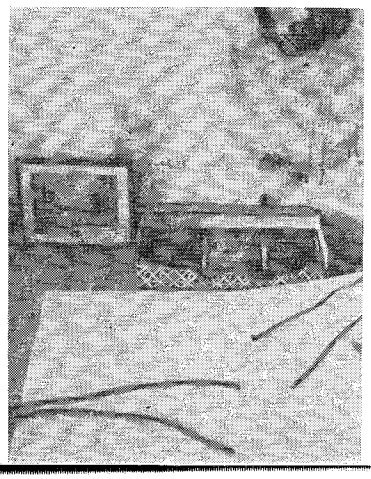
One of the splices had the appearance of being freshly made and therefore it was stripped. From here, the secret of the mysterious fire that couldn't have started unfolded. The splice was not a splice. Instead, the two wires were just taped together. One, the positive side, was found to be worn bare for a length of about one-sixteenth of an inch. Placing the bare wire against the bulkhead where it would have draped revealed exact correlation with a metal screw. The screw was screwed into the wood desk at its junction with the desk's metal framing. The desk frame was welded to the bulkhead. The screw had burn marks and the bulkhead immediately behind it had "feathers" of smoke marks. And directly above these marks was the second calendar's location, now marked only by scorched paint.

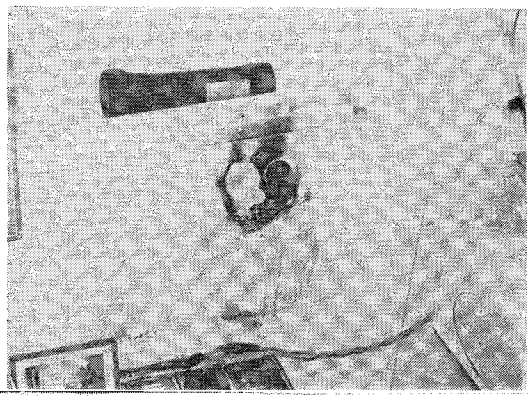
The screw apparently wore through the positive wire's insulation and shorted. The heat quickly set the calendar on fire and the copper wire, failing to fuse to the screw, broke free before overcurrent protection could interrupt the current flow. The burst of flame from the calendar set the other nearby calendar afire. Enter our heroes.

The Chief Pumpman was found to have quite innocently hidden the "secret" by taping the wires. Since he was extremely conscientious, and the wire looked burned, he didn't want to take the chance of it starting another fire, so he taped it.

The moral of this story is frighteningly apparent. Jury rigged electrical installations are extremely dangerous. Surely is it worth your ship to eliminate them. ⚓







A Master Evaluates *SHIPBOARD SAFETY*

Captain Maurice J. Sullivan

Captain Sullivan, a consultant in Marine Accident Prevention with Marsh & McLennan, Inc., New York, writes from a marine background that was initiated by a shipboard accident 24 years ago. As a result of this accident, he was signed aboard the vessel to replace a young seaman who had fallen to his death through an open hatch. Since that fateful day his career as a professional seaman has been affected by many accidents.

He has been a master of oceangoing vessels and knows firsthand of the headaches which result from unplanned and unwanted events defined as accidents.

A National Safety Congress Marine Section Presentation.

SUCCESS IN THE highly competitive steamship business requires that everyone aboard perform his duties in accordance with certain prescribed procedures. The procedures are not only applicable to the operation of the vessel—its equipment and machinery—but to every activity required to be carried out if the vessel is to perform the functions for which it was designed.

Failure to carry out any of these procedures can cause accidents resulting in losses to everyone connected with the operation—including crewmembers, passengers, shippers, consignees, owners, and others. The losses can be personal, physical, or financial. They can be disastrous.

There should be no doubt in anyone's mind that the prevention of accidents is an important factor in the efficient performance of each department aboard every vessel.

The first and most important requirement for successful accident prevention is a sincere interest and active participation on the part of the officers. Their interest and participation will depend to a great extent upon their knowledge and application of sound accident prevention procedures. Unfortunately these procedures are not always too well known.

While it is reasonable to say the officers are responsible for preventing accidents we must explain some of the facts which substantiate this reasoning.

The work aboard ship is directed by the officers. It is their responsibility to get the work done according to plan. Control of the work performance by which the jobs are to be accomplished lies with the officers. They have the authority to direct the work performances of their men.

I have never met an officer who wanted to see any of his men injured on the job or who wished for any other losses which would result from unsafe conditions and/or unsafe work performances.

I have never met an officer who did not acknowledge his responsibility for controlling the men under his direction. But I am acquainted with many officers who have very definite reservations about their responsibilities in preventing accidents. Many of them feel that accident prevention is a responsibility of especially delegated individuals with qualifications other than those required of an officer.

We cannot expect them to put forth a sincere, active interest in accident prevention just because they are told it is their responsibility. Many of them feel that accident prevention is an intangible and cannot be approached on a sound practical basis. This does not stimulate their active participation.

Evidence of the need for better understanding of the philosophy of accident prevention by responsible officers is indicated in some of the comments which have been expressed by them over the years.

As long as these misconceptions are allowed to exist you cannot expect to stimulate all of the interest and participation necessary to reduce the causes of accidents.

Some of the opinions frequently expressed by the officers are worthy of noting:

1. Accident prevention is an additional burden.
2. Accident prevention is limited to injury prevention.
3. Safety is primarily a matter of checking to detect unsafe conditions.
4. Accidents just happen and there isn't much I can do about it.
5. Safety interferes with work performances.

6. You can't watch everybody all the time.

By their comments it can be seen that the men who make these statements do not understand what accident prevention really means. While it would not be fair to expect that every officer should qualify as an accident prevention specialist, it is fair to clear up these erroneous beliefs.

An explanation of sound accident prevention procedures can do much to contradict these statements. An explanation of their application would demonstrate that good procedures can assist an officer in carrying out his responsibilities.

Accident prevention is not an additional burden. Preventing accidents is practical because it is primarily the process of getting a job done in the right way. The right way is the same as the safe way.

Accident prevention is not limited to injury prevention. Many accidents result in delays, damaged equipment, cargo damage, and other losses, but not necessarily in personal injuries. If an officer can prevent the causes of accidents which produce injuries he will automatically reduce the probability of these losses since the causes of both are identical.

Accident prevention is not just a matter of checking to detect the existence of unsafe conditions. All of us are aware American-flag vessels operate under the strictest safety regulations in the world. Inspections are made periodically by various Government agencies and private organizations to insure that existing rules and regulations are being complied with.

Hulls, machinery, lifesaving and firefighting equipment are included in these inspections to insure the vessels put to sea in the safest possible condition. Officers and unlicensed men are certified by the Government in accordance with existing standards. Masters and department heads make inspections of their vessels.

In fact, a study of accidents made some years ago revealed that approximately 88 percent of all accidents were caused chiefly by persons committing unsafe acts. It was also revealed that approximately 10 percent of all accidents were caused chiefly by the existence of unsafe conditions. The remaining 2 percent were classified as acts of God because the causes were uncontrollable.

Studies indicate these figures do vary a little. In any event, they still disclose sufficient proof that accidents are still caused chiefly by the unsafe acts of individuals. Inspections to detect the unsafe acts of crewmembers and others aboard the ship are just as important as are inspections to detect unsafe conditions.

The opinion of anyone who claims that accidents just happen and there isn't much that can be done about it has to be corrected. This can be corrected if he understands the factors of the accident sequence. An accident doesn't just happen. An accident is always the result of either someone doing something that is contrary to the right way of doing it, because hazardous conditions were allowed to exist, or because of a combination of the two.

Most accidents occur only after the cause was allowed to exist for some time. An accident does not occur every time someone fails to wipe up an oil spill. An accident doesn't occur every time a sailor transits a ladder with both arms full. On the average for 330 accident cases where unsafe practices are involved, it was determined that for 1 case requiring a physician's attention there were 29 cases that resulted in minor injuries and 300 times the unsafe act was committed without any injury occurring.

It is quite obvious, therefore, that an officer usually has many opportunities to detect unsafe acts before an accident occurs.

Every attempt must be made to convince disbelievers that safety definitely does not interfere with job performances. The steps taken to prevent accidents are the same as those taken to insure that the job is performed according to plan.

An officer usually checks a job to see that his instructions are being followed; that the proper tools, equipment, and materials are being used; that they are being used correctly. He normally checks to see how the work is progressing. He is familiar with the work, knows what must be done, and how it is to be done. Since these measures are also the same as what are required in preventing accidents, it is obvious he does not have to possess extraordinary qualifications in respect to safety.

I will agree that it is impossible to watch everybody all the time. Since most individuals do not do things the wrong way all the time, it isn't necessary. However, since everyone rarely does everything in the right way all the time, it is necessary to make frequent random observations of work performances and to make corrections when unsafe acts are being performed.

Accident prevention can be defined as the process of recognizing accidents in the making; recognizing unsafe acts and unsafe conditions and eliminating them before accidents occur. This brings us to the second fundamental of a successful shipboard safety program.

Once an officer is convinced that accident prevention is rightfully a part of his job, and that it is to his benefit to participate, he is entitled to know in what manner he can participate.

His participation is required in several phases. He must have a knowledge of past accident causes and probable accident causes. This knowledge is essential if he is to make inspections and observations, instruct his men, develop operating rules, and investigate accidents, all of which are vital to accident prevention.

By knowing which unsafe performances and/or unsafe conditions

which resulted in past accidents and if left uncorrected can result in future losses, he will know what to look for and where to look.

His own experience, the experiences of others, and cause information from the company can be of much help to him. I have received information in some vessels which I suppose was intended to stimulate my own safety efforts but did very little because true cause information was not available. Instead, I received statistics such as how many men fell overboard, how many fell from different levels, etc. I am sure these statistics were laboriously compiled with good intentions. But such information is of limited value.

In addition to the inspections mentioned earlier, each officer should plan and carry out inspections to supplement those made by others. He doesn't have to inspect an entire area at one time but can do a little every time he has the opportunity. There are several different techniques for making inspections.

1. He can inspect to detect obvious hazards. Such hazards are dangerous by their existence. Some examples are missing ladder rungs or unguarded sideport openings. This is the easiest type of inspection.

2. He can inspect to detect conditions which at the moment might not be hazardous but can readily be converted into a hazard. An example would be detecting gear left unsecured which could come adrift at sea and create an unsafe condition.

3. He can inspect to detect performances which are deviations from standard practices or established policy. For example, a failure to observe no smoking signs or using compressed air to clean off machinery parts.

4. He can inspect to detect performances which of themselves are not hazardous but in which hazards are created directly or in a contributory way. Failure of an individual to remove equipment from passageways is an example.

I believe each officer should be furnished a list of the accident types for the purpose of making inspections and job studies. An officer can use the 13 types to determine which of them would occur on a certain job or with a particular piece of equipment so that corrective measures could be taken.

Each officer can determine which accident causes represent the greater potential severity and give them the preferred attention they deserve.

Every officer should, in the course of his duties, make multiple random observations at frequent intervals to detect any deviations from safe work practices. A single check on any man is insufficient to detect unsafe practices and that is why it is necessary to make multiple observations.

It is a natural reaction for any officer to track down the reason why one of his men got hurt. Unfortunately this is a most misunderstood and much maligned part of some safety programs. Many people wrongfully believe that it is a faultfinding procedure. Some believe that an accident investigation is going to reflect unfairly on their abilities as officers.

Perhaps the name of the procedure should be changed from accident investigation to something else. To eliminate some of the misunderstandings it should be clearly understood that the purpose of investigating any accident from the safety point of view is that we must know the unsafe act and/or condition that caused the accident so that we can take corrective measures to eliminate recurrences from the same cause. This is strictly a determination of the facts.

Knowing as we do that the extent of injury resulting from any accident is fortuitous, we know that officers are handicapped in acquiring valuable cause information if they only investigate accidents which result in injuries.

All accidents should be investigated. An accident is a symptom of something gone wrong. It is an officer's responsibility to determine what went wrong and the reasons why.

The individual directly in charge of the job is the one who should make the investigation. He knows best what men, equipment, tools, and conditions are necessary for getting a job properly accomplished and what is necessary to maintain safe conditions.

The final requirement is the need for corrective action.

It is not expected than an officer will always have clearly in mind all the details as to how an unsafe condition or unsafe work practices can be eliminated. Sometimes this involves a question of mechanical design, a relocation of equipment, a change in procedures or personnel.

However, it is expected that the officers will express their opinions on what improvements can be made. This requires that they consider all the facts which they have developed regarding a problem and the practicality of a solution.

Officers can make known information which can be used to eliminate hazards by mechanical means such as guards over moving machinery or parts. They can offer suggestions for a change in location of equipment or the layout of gear and can make their thoughts known on procedures which, in their opinion, can be improved.

An officer can be very helpful in creating a proper attitude among the men assigned to him. He should be able to clarify any misconceptions his men might have which would influence their attitude on safety. Officers have many opportunities to do this. It can be done in part when a new man comes aboard, during the course of observing work performance, and at safety meetings. You can't convince everyone but you can do a lot of good by convincing as many as possible. Any officer who has the necessary interest and actively participates in preventing accidents aboard his vessel stands to gain more than one who is uninterested. ⚓

Crew Training

Capt. R. Walgate, Master, Empress of Canada

Although a modern merchant ship may be equipped with the most up-to-date safety devices, if the crew is not properly trained to use the equipment and act promptly and decisively in emergencies, the ship may be lost or a comparatively small accident turned into disaster. However, the difficulties of training crews can be immense.

The change-around in crews often negates effort put into training. After several experiences of this nature, officers sometimes lose enthusiasm. As a Master, one must constantly encourage the officers and petty officers and give them every help to maintain discipline and continue every effort to pass on their knowledge to the other members of the crew.

In passenger vessels I have commanded recently, when signing on crew, in addition to handing every man a card listing his fire and emergency station, on the back of which is printed the alarm signals, etc., he also gets an additional notice which alerts him to his responsibilities.

The first drill is carried out in port, after a muster of all hands, amidst an atmosphere of storing and getting ready for sea.

The next presailing drill is a Muster Stations with passengers. All drills thereafter, if possible, are carried out at sea, with the exception of any required in port by the Coast Guard or the British Board of Trade, with their Inspectors and Surveyors attending.

By the third drill (this time at sea), special lists will have been prepared, covering each deck individually with every man's position noted. Officers then are detailed to inspect each deck and any discrepancies discovered at the time can be corrected. Various parties of men are sent to deal with imaginary outbreaks of fire, and boats are swung out and prepared for lowering. The engineroom exercises emergencies. After this drill, the ship can be considered reasonably secure, even if the crew is new or a much-changed-around one. Of course, during the initial stages, one can always rely on a nucleus of officers and men who know their jobs thoroughly, but by this third drill every man should know his job.

Later, further efforts are made with lectures and demonstrations to small groups.

All officers, not only the Executive Officers, but also Engineroom, Purser, and Catering Officers are made alive to their responsibilities in emergencies and their enthusiasm is obtained. This is of vital importance, as the officers will pass on alertness to the lower ranks and ratings, and the ship gains the vitality of efficiency. The ship is then an integrated whole.

When we think that every man knows his job, I begin to run drills without checking that everyone is at his station, to gage the response, which is usually good. The idea is to make drills interesting and not keep men hanging around, thus avoiding waning attention.

In a fire, I have recognized the fact that boats may be required for abandoning ship, both at sea and in harbor. A special party of AB's, with an officer, are detailed to prepare all boats for lowering, including those on the side adjacent to the dock in port, where they could be used as elevators for escape, or to bring shore apparatus on board. This party also fights fires on the upper decks.

When the schedule allows, a Man Overboard drill is carried out at sea. A marker buoy is tossed overboard and the ship executes a Williamson Turn, at the same time preparing two boats for lowering. The ship is steered right up to the buoy and the boat is often able to recover it without letting go the painter.

All drills are carried out under the full view of the passengers, which may be stimulating to an efficient crew and also adds to the passengers' feelings of being looked after securely. ⚓

A Warning On Welding

In a recent 6-month period there have been four fatalities from the improper use of cadmium alloy brazing rod. The deaths were traced to improper handling of silver solder and have prompted new warnings about the industrial welding product.

Silver solder should be carefully used under safe working conditions. The Division of Occupational Health of the Public Health Service emphasizes that all silver solders do not contain cadmium. However, when using any type of this material, the following precautions should be followed:

Warning labels, which should be on all packages, must be carefully read and followed.

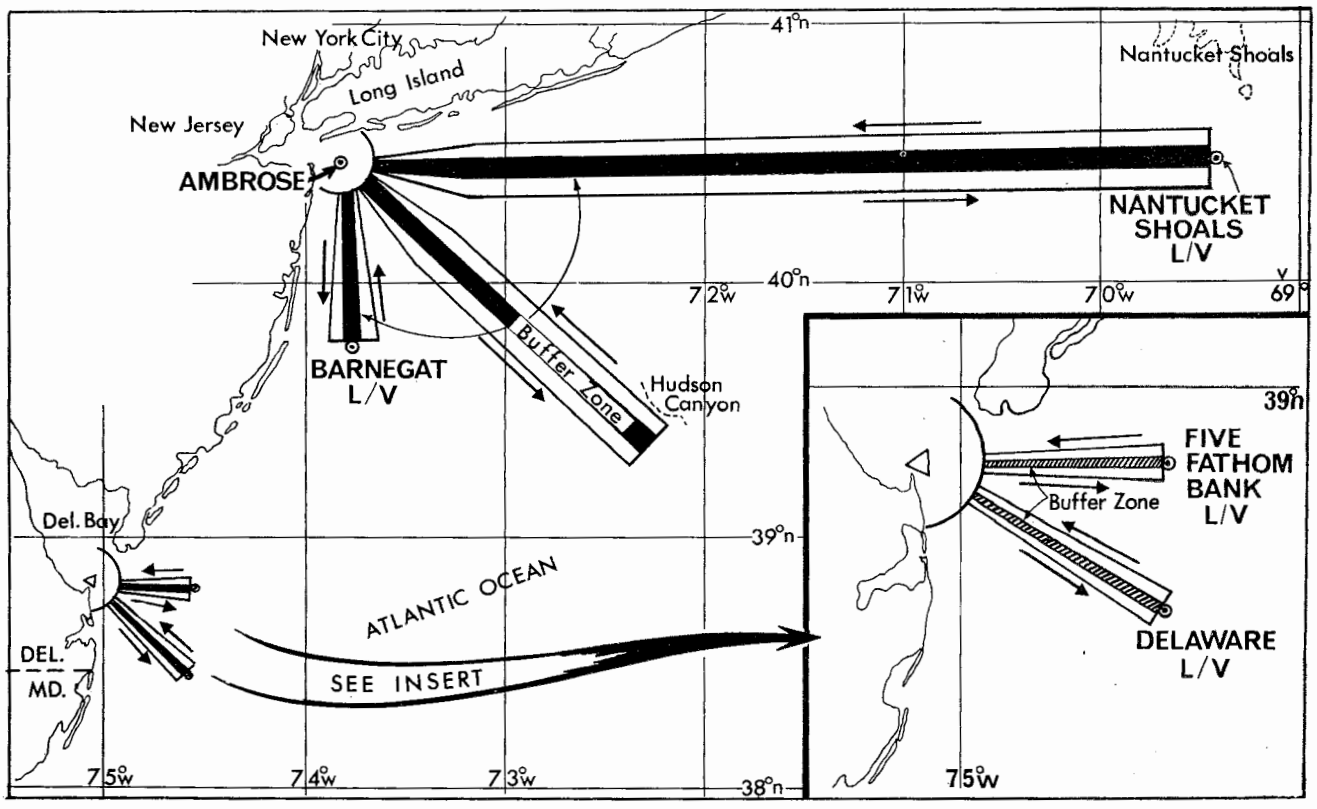
The working area must be properly ventilated, preferably with specific exhaust systems.

Workers must avoid breathing emitted fumes.

The symptoms of acute cadmium poisoning involve severe lung irritation with shortness of breath. These symptoms may or may not be noticeable for 2 or 3 days after exposure. The first symptoms can be irritation of the throat at the time of the exposure, followed by some soreness in the chest.

Persons who notice these symptoms after using silver solder should get medical aid immediately, giving the doctor full details. This will enable him to prescribe proper treatment. ⚓

National Safety Council



Safety Shipping Lanes

In an effort to reduce the risk of collisions in the crowded approaches to principal seaports, the U.S. Coast Guard has established the Nation's first peacetime ocean sealanes for water-borne commerce.

The action by the Coast Guard approves the recommendations made by a joint Maritime Industry-Government Sealane Study Group, which for more than 10 months engaged in developing a traffic control safety pattern for use by vessels entering and departing the port of New York. Recommendations made by a second study group for the port of Philadelphia were also adopted.

With more than 25,000 vessels entering and leaving the port of New York each year, it is anticipated that use of the established safety routes will greatly reduce the dangers of collision in the heavily congested waters leading to the harbor.

A number of collisions involving New York shipping have occurred in recent years. The *Andrea Doria-Stockholm* crash, and that of the Israeli liner *Shalom* with the Norwegian tanker *Stolt Dagali*, each with tragic loss of life, occurred in waters which will now be serviced by the new safety lanes.

Basically, the Sealane system consists in the establishment of two-way shipping lanes leading to the entrance to major harbors, with inward- and outward-bound traffic separated by a defined safety buffer zone, similar to the center dividing strip on major highways. Three such two-way lanes have been approved for the port of New York, and two others are being established that will lead to the entrance to Delaware Bay, the gateway to the port of Philadelphia.

A circle with a radius of 7 miles is to be established around the Ambrose Light Station at the entrance to New York Harbor, and the approved Sealanes will fan out from the circumference of the circle. One lane, for use of North Atlantic traffic, will extend due east to the Nantucket Lightship; a second, southeasterly for South America, Africa, and West Indies trade; and a third, due south, for Atlantic coastal shipping.

The inward- and outward-bound corridors of each lane will taper from a maximum width of 5 miles to a minimum of 1 mile at the Ambrose Light entrance circle. The dividing safety buffer zones will taper from 3 miles to 1 mile over the same distance.

Implementation of the New York Sealanes is scheduled for the month of April and for the port of Philadelphia in March. Widespread advance notification of the establishment of the lanes is presently being made to both domestic and foreign shipping.

Development of the Sealane plan for New York was undertaken by a committee headed by Commodore John W. Anderson, retired master of the superliner *United States*, in July 1965. The committee included representatives of the U.S. Coast Guard, the U.S. Corps of Engineers, the U.S. Coast and Geodetic Survey, the American Merchant Marine Institute, the Sandy Hook Pilots, and other marine interests.

Designation of the study group by the Coast Guard resulted from the adoption of a regulation by the International Safety of Life at Sea (SOLAS) Convention, which came into force in 1965 and which gave the signatory nations the right to assist steamship companies "in the selection of routes and the initiation of action wth regard to them, and the delineation of what constitutes converging areas." Both foreign and domestic steamship lines are being requested to implement the purpose of establishing safety sealanes by directing the masters of their ships to utilize the designated routes.

Existing Coast and Geodetic Survey navigation charts covering approaches to New York and the Delaware Bay areas will be overprinted to reflect the Sealane installations and the navigation aids which are to be used in marking them. Complete reprinting of each is scheduled during 1967.

Similar Sealane studies are to be conducted under the District Coast Guard Commanders at Boston, Norfolk, and Miami with a view of possible establishment of additional sea lanes for congested ports within those districts. Such a study has already been concluded for the port of San Francisco and other West Coast ports are under consideration.

The idea of separating ocean vessels moving in opposite directions is not new. It has been used since 1911 with good results on the Great Lakes, where it was adopted by agreement between the two shipping trade associations representing most United States and Canadian ship operators.

Similar voluntary ship traffic systems are also in use in the English Channel, in the vicinity of Gibraltar, and in the Persian Gulf. A North Atlantic Track Line Agreement involving 16 shipping companies under 6 different flags was established following the Titanic disaster in 1912 and is widely utilized to keep shipping clear of the northern ice menace. ⚓

Enforcement of Motorboat Venting Rules Begins 1 June

The Commandant of the U.S. Coast Guard, Admiral Willard J. Smith, has announced that as of June 1, 1967, pleasure boatmen will be expected to have their boat ventilation systems meet Coast Guard requirements or face a possible $100 penalty.

The requirements were originally to have gone into effect last June 1, but boatmen were given an additional year in which to get their craft in shape.

Admiral Smith stressed the minimum natural ventilation required by the Coast Guard for closed engine and fuel tank compartments. Coast Guard regulations specifically call for at least one inlet duct fitted with cowl or equivalent and at least one outlet or exhaust duct fitted with cowl or equivalent. Ducts must extend from the open atmosphere to a point at least midway to the bilge for the intake air duct and to the lower portion for the exhaust. Current industry standards will satisfy the requirements and are recommended.

The most complete coverage of the fire and explosion hazards and the elements of a natural ventilation system is found in the Coast Guard prepared pamphlet, Ventilation Systems for Small Craft. The pamphlet is available without charge from Commandant (CHS), U.S. Coast Guard, Washington, D.C. 20226. In addition to Coast Guard recommendations, the pamphlet includes the industry standards for natural ventilation systems.

In order to assist the Coast Guard in promulgating ventilation safety considerations, the U.S. Coast Guard Auxiliary, civilian volunteer arm of the Coast Guard dedicated to boating safety, has been using the criteria set forth in the ventilation pamphlet to determine whether or not a pleasure boat may be awarded their "Seal of Safety" decal. A free Courtesy Motorboat Examination by local Auxiliary flotilla to determine if your boat meets the safety requirements is recommended. ⚓

Gyrocompass School Opens at SCI

The Merchant Marine School of the Seamen's Church Institute of New York has opened a newly created Gyrocompass Department. This course is given with the cooperation of the Institute, the Sperry-Piedmont Corp., and the Maritime Administration.

After 2 weeks of intensive instruction, equally divided between lectures and practical application of the lectures, certificates will be issued to those who have successfully completed the course. Included in the department's equipment will be a fully operational gyrocompass.

The course will be free to qualified American seamen. Others will be asked to pay a modest fee. Inquiries may be addressed to Seamen's Church Institute, 25 South Street, New York, N.Y. 10004. ⚓

AMENDMENTS TO REGULATIONS

TITLE 46 CHANGES

Special Load Line Provisions Published

The International Convention on Load Lines, 1966, with annexes, was signed for the United States at London on April 5, 1966, and recommended to the U.S. Senate on September 12, 1966. The U.S. Senate consented to its ratification on October 13, 1966. It was ratified by the President on November 4, 1966, and notice of the U.S. acceptance has been deposited with the Inter-Governmental Maritime Consultative Organization in London.

The International Convention on Load Lines, 1966, will enter into force 12 months after at least 15 governments, including 7 each with not less than 1 million gross tons of shipping, have become parties.

The purpose of the convention is to establish uniform principles and rules with respect to the limits to which ships on international voyages may be loaded, having regard to the need for safeguarding life and property at sea. Annexes, forming an integral part of the convention, embody regulations for determining load lines indicating the depth to which vessels may be loaded according to the geographical zone and the season of the year in which they operate. Certificates are prescribed for issuance to ships surveyed and marked in accordance with the convention, or validly exempted.

The convention and regulations are designed to bring up to date the principles and rules that have been applied for 33 years under the Load Line Convention signed at London on July 5, 1930 (47 Stat. 2228; Treaty Series 858). Scientific developments, improvements in ship structures, and the experience gained in the past three decades have indicated the need to revise load line regulations so as to improve economy and safety in shipping. Great changes have occurred in ship design and construction, shipbuilding technology and ship operation. New types of closing appliances, in particular metal hatch covers, have improved the watertight integrity of ships. Other technical developments (the extensive use of welding, the rounded gunwale, etc.) have also become widespread. The vast increase in the size of ships, particularly tankers and bulk carriers, has made it necessary to extend the existing freeboard tables to cover ships up to a length of 1,200 feet.

The convention does not apply to ships of war, new ships less than 24 meters (79 feet) long, existing ships of less than 150 gross tons, pleasure yachts not engaged in trade, and fishing vessels. Ships solely navigating the Great Lakes and the St. Lawrence River, the Caspian Sea, and certain South American rivers are also excepted. A ship not normally engaged on international voyages but which, in exceptional circumstances, must undertake such a voyage may be exempted if safety requirements are met. Exemptions are also available for ships engaged in sheltered voyages between neighboring ports and ships embodying novel features useful in research and development, provided that safety requirements of the countries visited are complied with.

Existing treaties on load lines continue to have full effect as regards (a) ships to which the new convention does not apply and (b) ships to which it applies, in respect of matters for which it has not expressly provided.

When the International Convention on Load Lines, 1966, does come into force, it will provide load lines for a different range of vessel size than the 1930 Convention and additionally for unregistered vessels. Specifically, new vessels 79 feet (length) or greater will require load lines, while load lines for existing vessels are based on a minimum of 150 gross tons. Many large ships not covered in full previously will now be covered by definite regulations. Also, existing ships which meet the additional requirements of the new convention will generally enjoy a reduced freeboard (i.e., increased capacity) when compared with load lines now assigned under the 1930 Convention. All existing vessels which cannot meet the additional requirements will remain under the 1930 Convention until it is renounced, at which time they will get a 1966 Load Line Certificate with a freeboard essentially identical to their present freeboard as a ship "not complying with" additional requirements.

During the intermediate period before the 1966 Convention comes into force, it has been determined desirable to permit Assigning Authorities under the International Load Lines Convention, 1930, as permitted by administrative provisions contained therein, to utilize certain provisions in the 1966 Convention for those ships not specifically covered in the 1930 Convention. For example, the 1930 Convention does not prescribe tabular freeboards for tankers (and special type vessels as referred to in Art. 8 therein) above 600 feet in length nor for other vessels above 750 feet in length, but leaves the tabular freeboards of such vessels to be determined by the respective Governments.

For those vessels desiring to utilize certain provisions in the 1966 Convention and which meet certain prescribed requirements, special load line provisions are prescribed as a new Subpart 43.03 in 46 CFR Part 43, which are set forth below in this document.

It has been also determined that the substitution of an equivalent minimum bow height for the forecastle required by Rule 94 of the International Load Line Convention, 1930, is permitted under the substitution provision in Article 18 of the 1930 Convention. In this regard, the minimum bow height as specified in Regulation 39, Annex I, of the 1966 Convention is accepted as being at least as effective as the requirement to have a forecastle in Rule 94 of the 1930 Convention.

Use of the load line provisions in 46 CFR Subpart 43.03 below, which are applicable to certain ships when qualifying under the requirements therein, will not result in a load line on any such vessel which in the judgment of the Commandant would be above the actual line of safety.

1. The load line regulations in 46 CFR Part 43 shall be amended by inserting after § 43.01–100 a new Subpart 43.03, consisting §§ 43.03–1 to 43.03–20, inclusive.

2. The special load line provisions designated as 46 CFR Subpart 43.03 shall be effective on and after the date of January 6, 1967.

Subpart 43.03—Special Load Line Provisions Applicable to Certain Ships

Sec.

§ 43.03–1 General.

(a) The International Convention on Load Lines, 1966, was ratified by the President on November 4, 1966, and the notice of U.S. acceptance has been deposited with the Inter-Governmental Maritime Consultative Organization in London. During the intermediate period before the 1966 Convention comes into force, the provisions of that Convention may be utilized so far as they in no way contravene the provisions of the International Load Line Convention, 1930, and if they are utilized in accordance with the special provisions in this subpart. The following general conditions are necessary prerequisites to the use of the 1966 Convention:

(1) All applicable provisions of the International Convention on Load Lines, 1966, must be met;

(2) There can be no contravention of the International Load Line Convention, 1930, while it remains in force; and

(3) In no case shall a freeboard be assigned to any vessel which is less than the final freeboard expected when the International Convention on Load Lines, 1966, comes into force.

(b) The following three classes of ships having International Load Line Certificates will be eligible for freeboards assigned according to certain provisions of the 1966 Convention:

(1) Tankers over 600 feet in length.

(2) Steamers, as defined in § 43.-05–1 (a), over 750 feet in length.

(3) Special type ships over 600 feet in length.

CROSS REFERENCE: See Article 8 of International Load Line Convention, 1930, and paragraphs (7) to (9) of Regulation 27 of International Convention on Load Lines, 1966.

(c) Since the assignment of U.S. Coastwise Load Line Certificates is not limited by the effective International Load Line Convention, the minimum length limits in paragraph (b) of this section do not apply for the assignment of coastwise load lines. Therefore, effective immediately, existing §§ 43.15–98 and 43.30–75 may be considered replaced by the applicable provisions of the International Load Line Convention, 1966, without exception. However, existing vessels having load lines assigned in accordance with § 43.15–98 or § 43.-30–75 may retain such assignments at the owner's option.

§ 43.03–3 Special determinations.

(a) It is considered that the substitution of equivalent bow height for the forecastle required by Rule 94 of International Load Line Convention, 1930, is justified under Article 18 of the 1930 Convention, which allows "* * * any other arrangement: *Provided,* That such Administration shall have been satisfied that the fitting, * * * or the arrangement substituted is in the circumstances at least as effective as that specified in this convention". In this regard, the arrangement of bow height specified in Regulation 39, Annex I, of the 1966 Convention is accepted as at least as effective as the requirement to have a forecastle in Rule 94 of the 1930 Convention for tankers.

(b) Any U.S. ship which may be given a reduced freeboard as a tanker or as a ship of special type shall have a forecastle as prescribed or an equivalent bow height and be given a minimum Winter North Atlantic freeboard, which is the Winter freeboard plus an addition at the rate of 1 inch per 100 feet in length, even though this latter requirement is not included in the 1966 Convention. Moreover, the flush deck penalty and the correction for round of beam shall be applied: *Provided,* That application of the latter must not result in the final assigned freeboard being less than that permitted by the 1966 Convention.

§ 43.03–5 General requirements for all ships.

(a) All three classes of vessels mentioned in § 43.03–1 (b) shall meet the following requirements in order to be assigned freeboards under this subpart:

(1) The Assigning Authority must be satisfied that the structural strength of the vessel is sufficient for the draft corresponding to the freeboard assigned (Regulation 1).

(2) Loading information must be provided to the master so he may arrange for the loading and ballasting

of his ship in such a way as to avoid any unacceptable stresses in the ship's structure (Regulation 10(1)).

(3) The ship must have a minimum height of bow in accordance with Regulation 39.

(4) For any trunk to qualify for any freeboard allowance, its breadth must be at least 60 percent of the breadth of the ship (Regulation 36 (1)(g)), and where there is no superstructure, the length of the trunk in order to qualify for an allowance must be at least 60 percent of the length of the ship (Regulation 36(1)(h)).

(5) No freeboard allowance in respect of any superstructure shall be given unless the superstructure is enclosed in accordance with Regulation 3(10)(b). Closures of nonaccess type openings in after bulkheads of superstructures will be recognized as weathertight if they meet the following provisions:

(i) The closure shall be a steel plate of equivalent strength and rigidity to the surrounding bulkhead and which fays directly to the bulkhead, and is securely hook bolted so as to effectively resist a hose test.

(ii) The opening shall be as small as practicable; shall have at least a 24-inch sill; and shall not need to be opened at sea.

§ 43.03–10 Additional requirements applicable to tankers.

(a) The following special regulations apply (in addition to those in § 43.03–5) to all tankers seeking freeboard according to International Convention on Load Lines, 1966:

(1) Where applicable, calculations indicating compliance with the flooding and damage stability criteria set out in Regulations 27 (2) and (3) must be completed to the satisfaction of the Assigning Authority.

(2) Exposed hatchways on the freeboard and forecastle decks and on the top of expansion trunks must be provided with efficient watertight covers of steel or other equivalent material (Regulation 26(4)).

(3) The tanker shall comply with all the conditions of assignment in Chapter II of Annex I of the 1966 Convention which are applicable to a Type "A" ship.

(4) The deduction for excess sheer will no longer be allowed unless an enclosed midship superstructure is fitted. The deduction will be calculated in accordance with Regulation 38(15).

(b) After meeting the general requirements and special tanker requirements, the new freeboard may be calculated using the basic freeboard table for Type "A" ship in accordance with Regulations 27 (2) to (4) and 28(1).

§ 43.03–15 Ships, other than tankers, not satisfying the flooding and damage stability criteria.

(a) The following special provisions shall apply to all vessels, where eligible under this subpart, which do not satisfy the stipulated flooding and damage stability criteria, and are in addition to those regulations mentioned in § 43.03–5 for all vessels:

(1) No flooding or damage stability calculations are needed.

(2) Exposed hatchways on the freeboard and forecastle decks must be provided either with weathertight hatchcovers of steel or other equivalent material complying with Regulation 16 or with pontoon covers complying with Regulation 15(7), the strength of which shall be subject to the satisfaction of the Assigning Authority.

(3) The vessel complies with all the conditions of assignment in Chapter II of the 1966 Convention which are applicable to a Type "B" ship.

(4) Where a forecastle, if fitted, is less than .07L the percentages of deduction in the table applicable to Type "B" ships in Regulation 37(2) will be reduced in accordance with the formula in Regulation 37(3)(c).

(b) After meeting the general requirements and special steamer requirements, the new freeboard may be calculated using the basic freeboard table for a Type "B" ship in accordance with Regulations 27 (5) and (6) and 28(2).

§ 43.03–20 Ships, other than tankers, which do satisfy the flooding and damage stability criteria.

(a) Ships fully complying with the provisions of paragraphs (7) and (9) of Regulation 27 of the International Convention on Load Lines, 1966, are regarded as ships of special type referred to in Article 8 of the International Load Line Convention, 1930. Such ships, where eligible under this subpart, may be assigned the freeboards provided for in the 1966 Convention subject to the following:

(1) Flooding calculation indicating compliance with the flooding and damage stability criteria set out in Regulations 27 (7) and (9), as applicable, shall be submitted and approved.

(2) Exposed hatchways on the freeboard and forecastle decks must be provided with weathertight hatchcovers of steel or other equivalent material complying with Regulation 16, the strength of which shall be subject to the satisfaction of the Assigning Authority.

(3) With the exception of hatchway covers, the ship shall comply with the conditions of assignment in Chapter II of Annex I of the 1966 Convention, which are applicable to a Type "A" ship.

(4) Where a forecastle, if fitted, is less than .07L, the percentage of deduction in the table applicable to Type "B" ships in Regulation 37(2) will be reduced in accordance with the formula in Regulation 37(3)(c).

(b) After meeting the specified requirements, vessels eligible under this section may have their freeboards calculated in accordance with Regulations 27 (7), (8), and (9), as applicable, and the Tables in Regulation 28.

(Federal Register of Jan. 6, 1967)

Open Flame Water Lights Prohibited at Offshore Petroleum Operations

The areas surrounding drilling rigs engaged in offshore petroleum operations may be exposed to or have in the immediate vicinity flammable or explosive vapor mixtures. Under all circumstances it is desirable to reduce to a minimum the possibilities of fire or explosion. One means is to prohibit the use of water lights of an open flame type, such as a calcium-carbide light, to be provided with ring life buoys intended for emergency use when people are overboard. The National Offshore Advisory Panel to the Merchant Marine Council at its meeting held August 18, 1966, noted that a potentially dangerous situation existed in connection with offshore petroleum operations. Some vessels now attending drilling rigs are not tank vessels and therefore not subject to the prohibition concerning calcium-carbide water lights on tank vessels. These vessels not subject to the tank vessel regulations may have on board ring life buoys with water lights of an open flame type attached. Their officers and crewmembers may not realize nor recognize the potential hazards involved if such lights are used in an emergency or actuated for any reason. If a person falls into the water, the normal reaction is to use the lifesaving equipment available and intended for such use. If the water light attached to the ring life buoy happens to be one of an open flame type, its use introduces a dangerous fire hazard and may create a very serious casualty.

Vessels attending offshore petroleum operation equipped with water lights of an open flame type shall replace such lights with approved electrical water lights manufactured pursuant to specifications in 46 CFR Subpart 161.001 as soon as practicable, but in no event later than July 1, 1967. On and after July 1, 1967, no vessel attending offshore petroleum operations is permitted to carry water lights which produce an open flame when used or actuated, and such lights shall be removed from the vessel.

For vessels attending offshore petroleum operations, the owners, operators, or agents are requested to bring to the attention of masters and crewmembers information about potential hazardous conditions which may develop if a fire or spark occurs, including the use of a calcium-carbide water light or any water light of an open flame type, when the vessel is in the area of drilling rigs where there may be flammable or explosive vapor mixtures present.

The regulation amendments in this document shall be effective on date of publication in the Federal Register.

Section 75.43–5(b) of passenger vessel regulations is amended to read as follows:

§ 75.43–5 General.

* * * * *

(b) All water lights shall be of an approved type, constructed in accordance with Subparts 160.012 or 161.001 of Subchapter Q (Specifications) of this chapter: *Provided,* That water lights which produce an open flame are not permitted and shall be removed from vessels attending offshore petroleum operations.

* * * * *

2. Section 75.43–90(a) is amended by adding a subparagraph (2) reading as follows:

§ 75.43–90 Vessels contracted for prior to May 26, 1965.

(a) * * *

(2) Any vessel attending offshore petroleum operations is not permitted to carry water lights which produce an open flame when used or actuated, and such lights shall be removed from the vessel.

3. Section 94.43–5(b) of cargo vessel regulations is amended to read as follows:

§ 94.43–5 General.

* * * * *

(b) All water lights shall be of an approved type, constructed in accordance with Subparts 160.012 or 161.001 of Subchapter Q (Specifications) of this chapter: *Provided,* That water lights which produce an open flame are not permitted and shall be removed from vessels attending offshore petroleum operations.

* * * * *

4. Section 94.43–90(a) is amended by adding a subparagraph (2) reading as follows:

§ 94.43–90 Vessels contracted for prior to May 26, 1965.

(a) * * *

(2) Any vessel attending offshore petroleum operations is not permitted to carry water lights which produce an open flame when used or actuated, and such lights shall be removed from the vessel.

5. Section 180.30–1 of small passenger vessel regulations is amended by adding a paragraph (b) reading as follows:

§ 180.30–1 General.

* * * * *

(b) Any vessel attending offshore petroleum operations is not permitted to carry water lights which produce an open flame when used or actuated, and such lights shall be removed from the vessel.

These amendments are to be found in the Federal Register of January 13, 1967.

STORES AND SUPPLIES

Articles of ships' stores and supplies certificated and canceled from January 1, to January 31, 1967, inclusive, for use on board vessels in accordance with the provisions of Part 147 of the regulations governing "Explosives or Other Dangerous Articles on Board Vessels" are as follows:

CERTIFIED

National Paper & Specialty Co., Inc., Post Office Box 428, Thibodaux,

La. 70301: Certificate No. 709, dated January 4, 1967, NAPASCO SC–200.

The Maltby Co., 8468 Warner Drive, Culver City, Calif. 90230: Certificate No. 710, dated January 5, 1967, RUST DISSOLVING PENETRANT.

DuBois Chemicals, Division of W. R. Grace & Co., Broadway at Seventh, Cincinnati, Ohio 45202: Certificate No. 711, dated January 12, 1967, C–1102.

Virginia Chemicals Inc., West Norfolk, Va. 23703: Certificate No. 712, dated January 12, 1967, PRO–CIDE.

CANCELED

Trinity Oil Corp., 250–252 Plymouth Street, Brooklyn, N.Y. 11201: Certificate No. 223, dated January 12, 1953, TRINITY PENETRATING OIL NO. 400.

DuBois Chemicals, Division of W. R. Grace & Co., Broadway at Seventh, Cincinnati, Ohio 45202: Certificate No. 630, dated September 3, 1965, DUBOIS SOLVENT CLEANER; Certificate No. 637, dated February 8, 1966, C1102–B.

Petrolite Corp., 369 Marshall Avenue, St. Louis, Mo. 63119: Certificate No. 685, dated September 7, 1966, DS–615.

AFFIDAVITS

The following affidavits were accepted during the period from December 15, 1966 to January 15, 1967:

Logansport Machine Co., Inc., Logansport, Ind. 46947, VALVES.[1]

Mosites Rubber Co., Inc., Post Office Box 2115, Fort Worth, Tex. 76101, VALVES.[2]

CHANGE OF ADDRESS

Refrigerating Specialties Co., 2445 South 25th Avenue, Broadview, Ill. 60153.

[1] Hydraulic control valves HC–095, HC–031, HC–032, HC–085, HC–087, FC–015, HP–150, RV–055, RG–036, SC–380.

[2] Resilient seated butterfly valves, 150 psi maximum.

GREAT LAKES

(*Continued from page 55*)

moving traffic in the area is composed of lake vessels. Representative of this is the count of commercial traffic by a Coast Guard station just above Detroit during 1966, which found that 86 percent of the transits were made by lakers. Figures like these help justify keeping most of the features of the Great Lakes Rules. The other side of the coin is that the ever-increasing number of salt water vessels and the burgeoning ore trade between the Labrador mines and the lakes indicate a closer tie between the rules would be advantageous. And, as pointed out earlier, 61 percent of the vessels which operated under Great Lakes Rules during the 1966 season actually transited the Seaway and navigated under the International Rules.

We can all agree that the Great Lakes Basin has a rich history closely tied with the development of water transportation. Large lakers were employed in an efficient system before the opening of the St. Lawrence Seaway; the Great Lakes Rules and certain other operational requirements contributed to its efficiency. The influx of large numbers of ocean vessels has helped the economic growth of the area, but has given rise to some difficulties of adjustment between operating requirements on the lakes and on the high seas. We of the U.S. Coast Guard seek your support for a proposal that should make the transition between the two sets of rules easier; it would essentially preserve most aspects of the present Great Lakes Rules but would limit the important operational differences between the Great Lakes and International Rules to sections of five different rules. The selection of the operational features of the Great Lakes Rules incorporated within the proposal was made in accordance with correspondence and discussions with the Lake Carriers' Association and the Canadian Department of Transport. The proposed rules offer these advantages: they follow the format of the International Rules, making the learning, understanding, and following of both sets easier; and they include more of the substance of the International Rules than the present Great Lakes Rules, again making it easier to learn and use both sets. This should result in clearer compliance with the Great Lakes Rules, and should further the safety of all vessels navigating by them. ⚓

WATERWAY

(*Continued from page 58*)

tive committee and all department heads. This is the group which will assume responsibility for implementing policies of the executive safety committee.

A towboat safety committee should be set up and administered by the captain or relief captain under the supervision of the safety director, and the frequency of safety meetings should be determined by the company's accident rate; in no case should these meetings be less than one time each month.

When management has recognized the full potential of loss control by giving their unqualified support for their safety program, lower accident frequency rates will be forthcoming, since the individual responsible for company safety will have the direct support from officials of the company, department heads, and supervisors. Without this support, all safety programs are doomed to mediocre results.

When the safety program has this support the director of that program will be challenged to use all of his ingenuity to dig out these hidden costs and to educate all company personnel on the value of an accident-free operation. By pinpointing costs, everyone in the company can be motivated to an intensified accident prevention effort. ⚓

MERCHANT MARINE SAFETY PUBLICATIONS

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

The Federal Register may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. Subscription rate is $1.50 per month or $15 per year, payable in advance. Individual copies may be purchased so long as they are available. The charge for individual copies of the Federal Register varies in proportion to the size of the issue but will be 15 cents unless otherwise noted in the table of changes below. Regulations for Dangerous Cargoes, 46 CFR 146 and 147 (Subchapter N), dated January 1, 1967 are now available from the Superintendent of Documents, price: $2.50.

CG No.	TITLE OF PUBLICATION
101	Specimen Examination for Merchant Marine Deck Officers (7–1–63).
108	Rules and Regulations for Military Explosives and Hazardous Munitions (8–1–62).
115	Marine Engineering Regulations and Material Specifications (3–1–66). F.R. 12–6–66.
123	Rules and Regulations for Tank Vessels (5–2–66). F.R. 12–6–66.
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.
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.
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.
190	Equipment lists (8–3–64). F.R. 10–21–64, 10–27–64, 3–2–65, 3–26–65, 4–21–65, 5–26–65, 7–10–65, 8–4–65, 10–22–65, 10–27–65, 1–27–66, 2–2–66, 2–5–66, 2–10–66, 3–15–66, 3–24–66, 4–15–66, 9–8–66, 11–18–66.
191	Rules and Regulations for Licensing and Certificating of Merchant Marine Personnel (2–1–65). F.R. 2–13–65, 8–21–65, 3–17–66, 10–22–66, 12–6–66, 12–13–66.
200	Marine Investigation Regulations and Suspension and Revocation Proceedings (10–1–63). F.R. 11–5–64, 5–18–65.
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 (7–1–64). F.R. 6–3–65, 7–10–65, 10–9–65, 10–13–65, 3–22–66, 7–30–66, 8–2–66.
249	Merchant Marine Council Public Hearing Agenda (Annually).
256	Rules and Regulations for Passenger Vessels (5–2–66). F.R. 12–6–66, 1–13–67.
257	Rules and Regulations for Cargo and Miscellaneous Vessels (1–3–66). F.R. 4–16–66, 12–6–66, 1–13–67.
258	Rules and Regulations for Uninspected Vessels (1–2–64). F.R. 6–5–64, 6–6–64, 9–1–64, 5–12–65, 8–18–65, 9–8–65, 12–6–66.
259	Electrical Engineering Regulations (7–1–64). F.R. 2–13–65, 9–8–65, 12–6–66, 12–31–66.
266	Rules and Regulations for Bulk Grain Cargoes (11–1–66).
268	Rules and Regulations for Manning of Vessels (2–1–63). F.R. 2–13–65, 8–21–65, 12–6–66.
270	Rules and Regulations for Marine Engineering Installations Contracted for Prior to July 1, 1935 (11–19–52). F.R. 12–5–53, 12–28–55, 6–20–59, 3–17–60, 9–8–65.
293	Miscellaneous Electrical Equipment List (4–1–66).
320	Rules and Regulations for Artificial Islands and Fixed Structures on the Outer Continental Shelf (10–1–59). F.R. 10–25–60, 11–3–61, 4–10–62, 4–24–63, 10–27–64, 8–9–66.
323	Rules and Regulations for Small Passenger Vessels (Under 100 Gross Tons) (1–3–66). F.R. 12–6–66, 1–13–67.
329	Fire Fighting Manual for Tank Vessels (4–1–58).

CHANGES PUBLISHED DURING JANUARY 1967

The following have been modified by Federal Registers:
CG–176, Federal Register, January 6, 1967.
CG–256, CG–257, and CG–323, Federal Register, January 13, 1967.

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