





IN THIS ISSUE . . .

A most engaging critique on the ship-dredge confrontation by a considerably credentialed admiralty lawyer is featured beginning page 47. Up to the minute additions to the Public Hearing Agenda will be found on

page 60.



THE U.S. COAST GUARD'S new 210-ft. medium endurance Cutter Reliance (WPC-615) undergoes drills with an HH–52A "flying boat" rescue helicapter landing and taking off from her flight deck. The Reliance will be the first cutter operating in the Gulf with a helicopter port, allowing her greater versatility in performing search and rescue missions. Her homeport is Corpus Christi, Tex.

The Reliance has the capacity to tow ocean ships up to 10,000 gross tons. Equipped with twin propellers, each driven by a 2,500-h.p. combination diesel engine and gas turbine, she is capable of a sustained speed of 18 knots and a cruising radius of 5,000 miles at 15 knots. The 930-ton Reliance has a 34-ft, beam and a 10½-ft, draft. Her superstructure is arranged in three levels forward of midship affording 360 degrees visibility from the wheelhouse. Minus conventional smokestacks, the Cutter has exhaust vents in the stern.

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

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Two Atlantic, Gulf and Pacific Co., dredges in action. FRONT: The Hydraulic Dredge Mobile works a hurricane protection dike at Texas City, Texas. BACK: The George W. Catt working cut-off in Mississippi River.

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FEATURES

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PROCEEDINGS

OF THE

MERCHANT MARINE COUNCIL

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The Merchant Marine Council of The United States Coast Guard

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CORPS OF ENGINEERS HOPPER DREDGES MARKHAM AND HOFFMAN WORK TOLEDO HARBOR

Dredges have long been objects of brination; they represent the physimanifestation of progress, of "a opening," of expanded water prices. But, while symbolizing pogress, they oftentimes also repremat an obstruction, necessary though may be, to water traffic.

Robert A. Feltner, an attorney spedizing in admiralty law, has used and Gulf dredging operations as the endrop against which he draws this stique, especially written by the thor for the Proceedings. The est Guard is vitally interested in is facet of navigational safety; howin, the views expressed are the aum's and do not necessarily repret those of the Coast Guard.

Yr. Feltner was educated at Har- **College and Law School.** He **rticed law for 13 years in New rt City before moving to Houston 1962.** He is a member of the bars **Sew York and Texas, of the Fedi courts in those States, and of the Supreme Court.** He is a member **the Committee on Supreme Court miralty Rules of the Maritime Law ociation, of the Standing Commiton Admiralty and Maritime Law the American Bar Association, and the Safety and Advisory Council of Port of Houston.**

WHEN SHIP MEETS DREDGE A Critique

BY

Robert A. Feltner

DREDGES ARE VITAL to modern navigation. They have greatly contributed to the growth of ports and shipping, opening to large vessels channels that would otherwise be impassable. Safety owes much to their success in deepening and straightening narrow waterways. But, inevitably, as they work, they themselves are a hazard to ships, blocking off to traffic parts of channels, often at difficult bends, and compelling passage at low speeds sometimes incompatible with the maintenance of steerageway.

If collisions are to be prevented, ship pilots and dredge operators must work together to minimize these risks. Common sense will dictate many of the precautions to be taken. Others are spelled out by law---by the Inland and Pilot Rules, the Army Engineers' Regulations, and by the decisions of our courts in litigated cases. Shipping interests are familiar with the text of the rules and regulations, but can not be equally cognizant of the interpretations placed upon them by our judges or of the standards of conduct framed by our courts independently of the rules and regulations. It is the purpose of this article to bring together some of the more important of these holdings for the benefit of pilots and operators alike, and to set forth some practical suggestions de-

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rived from investigation and litigation of collision matters,

TYPES OF DREDGES

Dredges come in an infinite variety, ranging from the largest, seagoing, self-propelled and self-contained units, with crews of up to 100 officers and men, down to small bargemounted clamshells working with a crew of only 2 or 3. Each has its own special problems and presents special problems to passing vessels. For our purposes, however, they need be classified in only two ways: (1) How they move, and (2) how they work.

Some of the larger hydraulic and ladder dredges are self-propelled, and therefore relatively maneuverable. Most dredges, however, are not. For spuds at the forward end upon (or into) the bottom. They are not selfpropelled, but can be moved forward by lowering the dipper, raising the forward spuds, and then pulling on the backing rope which leads to the dipper handle.

Bucket or ladder dredges have a continuous chain arrangement with buckets attached at intervals. They move across the cut by means of swinging lines attached to anchors. Most harbor dredges of this type are self-propelled, and some are equipped with hoppers so that they may be dumped at sea.

Clamshell dredges work with a "grab" on a line running from the end of a boom. They do not "pin up", and so roll as the boom swings (or in swells cast by passing vessels),

cial publications before attempting i take large vessels up or down a nat row channel. Because of the time necessary to collect the information print it, and distribute it, the Notice cannot be entirely up to date. Fu ther, from what has been said con cerning the characteristics of various types of dredges, it can be seen the a pilot will have a much better ide of the maneuverability that will required of his ship if he knows what type of dredge is at work, whether has lines or a pipeline running acro the channel, whether it has tug a sistance at hand, what other craft a present, and the exact location whe it will be working when he passe both with respect to the position across the channel and the positio up and down the channel.



CORPS OF ENGINEERS FLOATING PLANT ROCK ISLAND. NOTE PIPELINES HEADED TO SHORE SPOILS AREA

working purposes, they can move themselves only slowly and for short distances, by manipulation of spuds and/or lines running to anchors or to shore. Otherwise, they must rely on tug assistance.

Hydraulic dredges work by sucking material from the bottom. Some self-propelled units, sometimes called "hopper" dredges, have built-in compartments to receive the dredged material. Those that do not (called "pipeline" or "cutter" dredges) must have a discharge pipe. If the pipe crosses the channel, it may be floated on pontoons, although in recent years, more dredges have used submerged lines. Usually, the pipe can be shifted only by auxiliary vessels, but on "dustpan" dredges, it can be controlled from the dredge.

Dipper dredges work by a shovel arrangement similar to that on steam shovels used in excavating building sites on land. While working, they are "pinned up" by pressing down but are built with a large beam for stability. They may be held in position by two spuds forward, or by lines. Non-self-propelled, they move ahead with the aid of a walking spud or by pulling on a line attached to the bucket while the bucket is resting on the bottom.

DUTY OF SHIP AND DREDGE TO BE INFORMED

Navigators and dredge operators should have certain information when working in a channel. The Coast Guard in Local Notices to Mariners and the Army Engineers in Notices to Navigation Interests furnish pilots with general information as to dredging activities in their areas. The courts have long and consistently held that pilots must be familiar with this material.

In addition, common sense suggests that pilots should obtain more information than is available in the offi-

Just as the pilot should be famili with the dredges, so the dredge open tor should be familiar with the traff Where the work is being done for t Army Engineers, a general description of the traffic in the area will usual be provided in the special condition section of the invitation for bid Again, more information should obtained than is thus provided. there is barge traffic, for examp the dredge operator should ascerta the size of flotillas and whether th are usually handled in push tows. hawser tows, or alongside; the use range of draft and horsepower of t tow boats, etc. If there is ship traff the dredge operator will want to kn the number and the maximum si and draft, of the vessels that ca tomarily use the channel.

A great deal can be accomplished informal consultations between **t** dredge operators and pilots' associtions before the work is begun.

with respect to the law, every man r charge of a vessel should be famil**with the regulations applicable to** the waters in which he works. Li**censed** pilots and ships' officers are mowledgeable; periodic examinations the Coast Guard and other au-Forities assure that. Captains of uninspected inland diesel tugs and leveren on dredges do not, however, need License; and experience has shown at some companies have not asared that their responsible personel are knowledgeable in the Rules for reventing Collisions. This can cause crious consequences. That some tugs nd some dredges are small is no exse; the smallest of vessels can cause major disaster on a busy channel.

DUTY OF THE DREDGE TO KEEP CHANNEL OPEN

Dredge operators are often warned in the technical provisions of the impy Engineers' contracts that—

"The Government will not underke to keep the channel free from essels and other obstructions, except • the extent of such regulations, if as may be prescribed by the Secmary of the Army, in accordance the provisions of Section 7 of **R**iver and Harbor Act approved 8 gust 1917.1 The contractor shall required to conduct the work in ch manner as to obstruct navigation Little as possible, and in case the ntractor's plant so obstructs the annel as to make difficult or ennger the passage of vessels, said innt shall be promptly moved on the proach of any vessel to such an exers as may be necessary to afford a acticable passage. Upon compleon of the work, the contractor shall comptly remove his plant, including nges, buoys, piles and other marks inced by him under the contract in rigable waters or on shore."

The Army Engineers' regulations re described below. All dredge oprators, of course, are subject to these gulations, whether working under remember on the total of the total of the total remember of the total of total of the total of total of the total of total

An 1899 statute (33 U.S. Code, sec.

It shall not be lawful to tie up or anchor vessels or other craft in narrow channels in such a

The shall be the duty of the Secretary of the say to prescribe such regulations for the administration, and navigation of the range waters of the United States as in a indement the public necessity may rethe for the protection of life and property, and operations of the United States in annel improvement, covering all matters are specifically delegated by law to some there executive department."

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ONE TYPE OF CUTTER HEAD. NOTE SUCTION HOLE BEHIND CUTTER BLADES.

manner as to prevent or obstruct the passage of other vessels or craft.

There is no exception in the statute for dredges, and one question which divided the courts in years gone by was the extent to which this statute applies to them. Some judges applied it to all dredges, whether working or not, and one judge even said that liability would necessarily follow if the dredge was in the channel! This was, of course, a wholly unreasonable point of view. The current cases make it clear that the statute does not apply to the working dredge, which is now said to be a "lawful obstruction," with a legal status superior to the ship anchored for its own purposes in the channel but inferior to that of a ship anchored in a properly designated anchorage ground. The dredge which

is not working, on the other hand, does not enjoy the same privilege, and indeed its status is hardly distinguishable from that of any other vessel.

The same prohibition against blocking channels without specific exception for dredges is found in the Army Regulations. Thus, the Engineers provide that, in waterways tributary to the Gulf of Mexico—

"A clear channel shall at all times be left open to permit free and unobstructed navigation by all types of vessels and craft that normally use the various waterways or sections thereof. The District Engineer may specify the width of the fairway required in the various waterways under his charge.

"No vessels or rafts shall anchor or moor in any of the land cuts or narrow parts of the waterway, except in

The statute referred to is the general mat of authority, 33 USC, sec. 1, which movides in part:



Couriesy Loyd W. Richardson Construction C

an emergency. Whenever it becomes necessary for a vessel or a raft to stop in any such portions of the waterway, it shall be securely fastened to one bank and as close to the bank as possible. This shall be done only at such a place and under such conditions as will not obstruct or prevent the passage of other vessels or rafts. Stoppages shall be only for such periods as may be necessary.

"Except temporarily, as authorized above, no vessel or raft will be allowed to use any portion of the fairway as a mooring place without written permission from the district engineer."[°]

Although no exception is stated for dredges, it seems clear that the first two paragraphs of this regulation are not intended to apply to working dredges. Their duty should be governed only by the less rigorous Pilot Rules, which provide, "Channels shall not be obstructed unnecessarily by any dredge or floating plant."³

SMALL HYDRAULIC DREDGE OF CUTTER HEAD TYPE

The usual government contract provision is that the dredge "obstruct navigation as little as possible". Of course, where a dredge is working for the Army Engineers, the contract itself is the "written permission" contemplated by the last paragraph of this regulation.

POSITION OF THE WORKING DREDGE

A few decisions may be cited to illustrate the current thinking of the courts as to the proper position of the working dredge.

A leading case involved a dredge working in the Houston ship channel at night. The operator observed a ship proceeding down the channel at full speed 2 miles away, and swung over to the west bank, leaving 175 feet of the 350 foot channel to the ship, which had a beam of 53 feet. Three minutes before collision, the ship reduced to slow ahead, but to a sheer off the east bank, and in creased again to full speed ahead minute before collision in an effor to break the sheer. The Court Appeals for the Fifth Circuit exon erated the dredge, saying that sh had done her full duty in allowin sufficient room for the ship to pa and, even though she could has moved further out of the channel, we under no duty to do so.

In another case, a tug with a to alongside, of a total width of 66 fee lost steerageway and stranded whi attempting to pass in the 75–90 fee of channel left by the dredge. Th Court of Appeals for the Fourth Cir cuit held that the dredge was not fault and said,

> The rule applicable is that a dredge lawfully engaged in digging will be regarded as free from fault if there is ample free water for passage.

This rule was extended in a Ne York case, in which a tug-assiste steamship was caused by the tide sheer into collision with a dredge (Continued on page 52)

² CFR, sec. 207.180(e). Similar regulations govern the waters between Chesapeake Bay and Florida, sec. 207.160(f), and similar restrictions on stopping apply on the inland waterway from the Delaware River to Chesapeake Bay, and in the C. and D. Canal, sec. 207.100(k).

³ Inland waters, 33 CFR, sec. 80.30. Similarly, on western rivers, sec. 95.64, and on the Great Lakes, sec. 201.14.

The Family of Dredges

Dredges lend themselves to easy bloging. For example, they can cataloged according to: (1) Method catacting the bottom, (2) method mit propulsion, and (3) method moving the extracted material once been removed from the bottom. it cut or bite at the bottom? is self-propelled, non-self-propelled readed to the bottom? Does it the material hydraulically or basic cataloged according to the self-propelled readed to the bottom?

Passibly the most readily observable of classification would be by **chod** of movement over the water. e dredges by all outward appear-🚥 are not too unlike an ordinary **ping** ship. They are propelled by **ulsi**on plants and screws like a cal ocean freighter; these are **-propelled.** Others sometimes use in conjunction with anchors t chead upon which they haul for-L These can, by expanding the se, also be considered self-pro-Other dredges are "spudded ", i.e., made fast (or relatively to the bottom with oversized Some use these spuds for ging and "walking" slowly ahead e others are more or less tightly 🖬 to the bottom; these are non-**F-pro**pelled.

The method of moving the dredged sterial falls into two categories: straulic and mechanical. Hydraulic movement of materials is accomplished by mixing the material with sufficient water to facilitate sucking it through a piping system either into a "hopper" aboard the vessel, to an area outside the channel or to a spoils area ashore. Sometimes elaborate piping systems are required for the latter.

Mechanical movement of materials is accomplished by simply taking a bite of the bottom, lifting it above the water and dropping it into a barge or out of the channel much the same as a "steam shovel" would dig out a chunk of soil and drop it into a dump truck for removal.

Greater variation comes when we classify by methods of material removal.

<u>Cutter head dredges</u> with their unique trailing pipeline system are the most familiar and widely used marine excavating unit. A rotating cutter head at the end of the dredging ladder loosens the materials which are then sucked into the dredge pump, delivered to the stern of the dredge and then to a disposal area by means of a pipeline (see pp. 48, 49, and 50).

Hopper dredges are self-propelled and are equipped with suction pipes which are dragged along the bottom while the dredge moves ahead on its own power. A measure of material

CORPS OF ENGINEERS HOPPER DREDGE COMBER

and water is conveyed to "hoppers" built into the hull. When these hoppers are filled, the dredge proceeds to a dumping ground in deep water where the hopper doors on the bottom of the hull are opened and the material dumped. (See p. 51 and p. 47.)

Dust pan dredges are so named because their suction heads resemble a large vacuum cleaner. They are selfpropelled. When dredging, head anchors are set at a great distance forward and once in position the dredge advances into the cut by wire rope haulage. (See dust pan dredge p. 54.)

Dipper dredges are heavy duty marine excavators featuring a stick mounted single excavating dipper (similar to a land operating "steam shovel"). When dredging, the dipper is forced into the underwater material. After being filled, the dipper is lifted and the load dumped into a barge alongside or in spoils areas. (See p. 53.)

<u>Clamshell dredges</u> are equipped with a clamshell bucket suspended by cable from a forward extending boom. Like the dipper dredge, the clamshell is lowered to the bottom, excavates the material, brings it to the surface and drops the material into barges or nearby spoils areas. (See p. 52.)

Bucket ladder dredges employ an endless chain of buckets.



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CORPS OF ENGINEERS CLAM SHELL (BUCKET) DREDGE TOMPKINS

The court said that the dredge would not be liable if either there was ample room for passage or the oncoming vessel had full opportunity to see the dredge's location and visualize the hazards of passing. In that case, no passing signal had been sounded by the ship, and there was no time for the dredge to have taken avoiding action after the sheer began. Probably, the extension of the rule will be limited to such situations.

In any event, the standard of care required of the dredge operator will be higher if its position is concealed. This may be illustrated by another New York case, which involved a dredge working in the vicinity of the Jersey Central Bridge in Newark Bay. It was so located that it could not be seen when the bridge was closed and blocked the draw when it was opened. Struck by a tow, it was held by a majority of the Court of Appeals for the Second Circuit solely at fault, both for its improper position and for failing to raise its spuds and move out of the way when the tug approached, as the dredging contract required. After stating the general rule exonerating a working dredge, the court said,

> There are limits which even a dredge so engaged may not exceed. To place her in waters in the path of navigation where she becomes a hindrance and obstruction, is negligent.

One of the three judges dissented on the ground that he was not persuaded that the dredge could have raised its spuds in time to avoid the collision.

POSITION OF THE NONWORKING DREDGE

While sympathetic to the requirements of the working dredge, the courts have been strict in dealing with dredges which are not working. It is probable that the above-quoted statute and regulations forbidding obstruction of the channel apply to the nonworking dredge with as great vigor as to other vessels. Dredge operators should note, in addition, that the Engineers' Regulations provide,

> When tied up individually, all vessels shall be moored by bow and stern lines. In narrow sections no vessel or raft shall be tied abreast of another.

> Whenever any vessel or tow is moored to the bank at least one crewmember shall always remain on board to see that proper signals are displayed and that the vessel or tow is properly moored at all times.⁴

Many of the court decisions have spoken as if the standard were whether the dredge is in or out of the channel. If it is in the channel, they say, it violates the statute and the regulations and the dredge is at fault. If it is outside the channel, its position is legal and the dredge is not at fault. However, closer analysis suggests that the better rule turns on whether or not the position is hazardous to passing vessels. If they can navigate past the dredge without difficulty, it should not be held liable, even though in the channel. If it embarrasses the navigation of passing vessels, it should be held liable, even though it is outside the channel.

This may be illustrated by two cases. The first was decided by the

Supreme Court. A dredge lay at nigh anchored on the west edge of Craigi Channel in Baltimore. It was struct by a schooner underway and in to of a steam tug. The schooner and tu had 200 feet of channel clear to th east of the dredge and were of sufficiently light draft to have navigate outside of the channel west of th dredge. Since they had plenty of se room, the Court held the dredge with out fault.

The second case involved a collision in the Kills in New York Harbor be tween a tow and a dredge anchored a night 25 feet outside of the channe but at a location where there was dangerous set to the tide. There wa abundant room for the dredge to hav moved closer to the shore. The dredge was held solely at fault.

How does the dredge operator de termine whether its position is haz ardous and therefore in violation d this standard? Obviously, this turn on the facts of each particular cast but one decision may be stated to il lustrate the criteria that the court apply. A tow collided at night with a dredge anchored with her attendar flats and scows in the middle of th Ohio River. As the dredge operator knew, the river had just risen sufficiently to enable numerous coal tow to get underway. The attorneys fo the dredge attempted to excuse it a the ground that there was sufficien water for the tow to have passed a one side of the dredge, but the Court Appeals for the Sixth Circuit held it fault was "gross."

> * * * (T) he determination of the risk * * * is not entirely a matter of ciphering. The qualities of the boat and her tow, the skill of the pilot, the effect of the current, how soon it was discovered that the plant was in the

³³ CFR, sec. 207.180(e) (2) applicable in waterways tributary to the Gulf of Mexico; similar regulations from Chesapeake Bay to Florida, sec. 207.160(f) (2), and on the inland waterway from the Delaware River to Chesapeake Bay and in the C. and D. Canal, sec. 207.100(h).

way of the usual course, and probably other things had much to do with its risk * * *.

The case is also interesting because zives judicial authority to the statement found in government contracts that the presence of a government insector does not relieve the contracof responsibility for the proper exaution of the work in accordance with the specifications. On this point, the court said,

> There is nothing in the fact that the work was being done under a contract with the government and the supervision of a government inspector, then on the dredge, to relieve the owner of the dredging plant of responsibility for the fault of the operators thereof.

APPROACHING-READINESS TO MANEUVER

As the ship approaches, preparato passing the dredge, both are oder a duty to be reasonably preared to maneuver as necessary for safe passage. The ship must be rder control, that is, able to slow and stop if necessary.⁵ This is difficult rule for certain vessels, but exceptions have been permitted by courts. Thus, a tug with a hawtow and current under foot should ve an anchor on the tow and a man dy to drop it. A deep laden ship could have a man standing by the indlass, and if she can not maintain ntrol by her own efforts at low reds, should have an assisting tug the bow.

The dredge is under a correspondg duty to be prepared to clear the mannel. As we have noted before, is is spelled out in the usual govment contract, but the courts have de it clear that the duty does not

133 CFR, sec. 207.180(e)(6), in waters mutary to the Gulf of Mexico. See also, **Excen** Chesapeake Bay and Florida, sec. **1160**(f)(6).

arise out of the contract and is applicable to all dredges.

SIGNALS

An agreement must be reached between the ship and the dredge, in ample time for both to maneuver, as to how the passing will be carried out. In accomplishing this, ship to ship radio is a great help, and the various experiments now being conducted in bridge-to-bridge communication indicate that it will prove even more advantageous. Where pilots use FM sets, dredges should obtain them, also. If the dredge will not be in the area long enough to justify purchase of a set, one can usually be rented. The advantages over whistle signals are of course that agreement can be reached at a much earlier time and more information can be exchanged.

The Pilot Rules require ships to give dredges "ample notice in advance of the time they expect to pass.⁶ This may mean as much as 10 minutes in the case of a dredge with a floating pipeline across the channel. Only by radio or telephone can a ship give such notice without delaying her approach.

However, even where radio communications are used, whistle signals must not be neglected. Conditions may have changed since the last communication, making a change of plans necessary. Keep in mind that on many dredges the leverman is expected to act as lookout in at least one direction (whether this is legally adequate is doubtful); his attention may be distracted by other traffic, breakdown crew machinery or changes.

The regulations are clear that whistle signals must be given, and make no exception. The Pilot Rules provide.

⁶ Inland waters, 33 CFE, sec. 80.31; West-ern Rivers, sec. 95.65; similarly, under Engi-neers' regulations, on the Great Lakes, sec. 201.15.

CORPS OF ENGINEERS DIPPER DREDGE GAILLARD

Vessels intending to pass dredges or other types of floating plant working in navigable channels, when within a reasonable distance therefrom and not in any case over a mile, shall indicate such intention with one long blast of the whistle, and shall be directed to the proper side for passage by the sounding, by the dredge or other floating plant, of the signal prescribed in the local pilot rules for vessels underway and approaching each other from opposite directions, which shall be answered in the usual manner by the approaching vessel. If the channel is not clear, the floating plant shall sound the alarm or danger signal and the approaching vessel shall slow down or stop and await further signal from the plant.

When the pipeline from dredge crosses the channel in such a way that an approaching vessel cannot pass safely around the pipeline or dredge, there shall be sounded immediately from the dredge the alarm or danger signal and the approaching vessel shall slow down or stop and await further signal from the dredge.7

A note of caution: While this Pilot Rule speaks of dredges, without distinguishing self-propelled from nonself-propelled, its application to selfpropelled dredges is doubtful. Unfortunately, this question has not been settled by the courts. It has been generally assumed that the signals to be given by and to self-propelled dredges underway are governed by the general meeting and overtaking rules rather than by the special rules discussed above.

Signals are of no value, of course, unless they are heard. Recognizing

 7 Inland waters, 33 CFR, sec. 80.26. Simi-lar rules cover Western Rivers, sec. 95.60; and the Great Lakes, sec. 201.10. The Pilot Rules are incorporated by reference in the engineers' regulations in waters tributary to the Gulf of Mcxico, 33 CFR, sec. 207.180-(e) (6); and between Chesapeake Bay and Florida, sec. 207.160(f) (6).



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that the ship to be signaled is as often astern as ahead, some progressive dredge operators have installed whistles both aft and forward. Where steam whistles are used, this has a double advantage, because the puffs of steam can be seen.

FAILURE TO SIGNAL

Probably more ship collisions have occurred because the pilot of one vessel assumed that he knew what the other vessel was going to do, and did not attempt to ascertain that intention by signal, than from any other cause; and this has been true in dredge-passing situations as well as in any other.

For example, in one case which occurred in the main ship channel of New York Harbor, a ship upbound blast to warn the ship to go to the other side. The ship then put over her helm but was going too fast, and struck the dredge. The ship was held at fault for passing on the wrong side of the channel and failing to stop and reverse when signaled, but the District Judge sitting in Delaware also held the dredge and the tug at fault for giving improper signals.

The pilot rule above quoted requires the dredge to sound an alarm "if the channel is not clear". Does this mean clear of all traffic, or merely clear insofar as the dredge itself is concerned? Two recent cases, one in the District Court in Oregon and one decided only last year in the District Court in Maryland, considered this question. In both cases, there were upbound and downbound vessels wishing to pass the dredge. The dredge no license to an oncoming vessel to damage the object. It was the duty of the *Kirkenes* to move at such speed and in such manner as to enable her to await the passing signal from the dredge.

What if the dredge blows no passin signal, no danger signal, no signal a all? It is still the duty of the shi to stop. Thus, a yacht proposing t pass on one side of a dredge, receive no answer to her signal and conclude that the dredge wanted her to pass of the other side. She was held at faul for the ensuing collision. The Courof Appeals for the Third Circuit said

> Its duty was to renew its signal and not leave the customary and safe passageway until it knew whether its sudden change of course was safe, cr, to adopt the language of *New York*, 175 U.S. 187 (at pages 201, 202) to stop



A DUSTPAN TYPE DREDGE. NOTE GEYSER OF DREDGED MATERIALS AT RIGHT

met a self-propelled hydraulic dredge working downbound at about 1 m.p.h. The ship pilot planned to pass the dredge port to port. The dredge captain, however, thought that the pilot intended to pass starboard to starboard and when the ship was only a few hundred feet away, hoisted his dredging apparatus and went full speed to port. The Court of Appeals for the Second Circuit held that the collision was due to the sole fault of the dredge. The effort made by the dredge captain to assist in what he thought was the intended passing was doubly unfortunate because, as the court said, "Being practically at rest, and not immediately under control for maneuverability (the dredge), had no duty to perform by way of avoiding the (ship) except to maintain her position.'

IMPROPER SIGNALS

The wrong signals can of course subject the dredge to the same liability as an absence of signals. In one case which arose in the Delaware River, a dredge and her attendant tug were anchored, with long lines on either side of the dredge, which had been weighted on one side so as to sink to the bottom, but not on the other. Belatedly observing that a ship intended to pass on the side with the floating lines, the dredge crew waved a lantern and the tug blew one signaled both vessels that the channel was clear and the vessels subsequently collided. In both courts, the dredge was exonerated. As the Maryland court put it, the regulations do not mean that the dredge is required "to act as a sort of traffic officer."

DUTY OF SHIP TO STOP

The cases also make it clear that, when the Pilot Rules say that the ship must "slow down or stop" upon receipt of a danger signal, they do not give the ship an option. If she has not received an assenting signal, she cannot pass, but must stop if necessary until she does.

The duty of the ship to stop is applicable even though the dredge may not clear the channel promptly. For example, one case tried in the Eastern District of Louisiana involved the tank ship Kirkenes, outbound from Port Arthur, and a dredge working on the western bank of Sabine Pass. Because of a fouled wedge in the ball joint connecting two segments, the pipeline could not be opened. Despite repeated danger signals sounded by the dredge, the ship blew a passing signal, continued on and struck the line. The court held the ship solely at fault for violating the Pilot Rules and said.

It is elementary law that the mere fact a stationary legal object which blocks the channel is not immediately removed, gives until the mystery of her silence was explained.

PASSING-DUTIES OF THE DREDGE

Each vessel must accommodate h maneuvers to the needs of the othe The pilot rules provide that the pip line shall be opened and, after a pas ing signal has been given to the shi the dredge shall straighten out with the cut. While the ship is passing, the dredge must slack to the bottom an lines running from the dredge acro the channel on the passing side white may interfere with or obstruct naw gation.⁸

How quickly this must be done in not spelled out in the regulation With respect to the clearing of the channel, the portion of the Pilot Rule pertaining to opening pipelines sate "as soon as practicable." The technical provisions of the government contract say that "said plant shall be promptly moved on the approach any vessel." While the question he not come before the courts, und doubtedly the rule will be that the dredge must clear the way as rapid as her working conditions permit Where a floating pipeline crosses the second second

³ Inland waters, 33 CFR, secs, 80.26 4 and (c) and 80.30; corresponding provision for Western Rivers, secs. 95.60 (b) and 4 and 95.64; and for the Great Lakes, sec 201.10 (b) and (c) and 201.14.

channel, or the dredge can not unided provide sufficient room for passing. this probably means that the irredge should have a tug on regular randby.

It is the exchange of signals that reates this duty in the dredge. In the absence of such an exchange, the redge's only duty is to maintain its position.

Whether signals are exchanged or tot, the dredge may not of course nove so as to leave a vessel attempting to pass with less room than at the time of her approach.

When an emergency arises, such as sheer by the vessel attempting to ass, the dredge is required to do what t can to avoid or minimize the imending collision. For example, a redge with spuds or cutter head on the bottom can reduce damage by thising them. In most cases, howmer, such situations arise at such the quarters and with so little time act that non-self-propelled dredges as exonerated.

The Pilot Rules say that dredges culd "move out of the way of vesa sufficient distance to allow them clear passage." In determining much room the dredge should a passing vessel, consideration culd be given to all of the factors marent to the dredge operator. On 🗯 one hand, shallow draft vessels he to proceed safely outside the mannel may be entitled to no part the channel at all. On the other 🛋 a deep laden vessel which may well the bank or bottom if compelled ravigate to one side may be en-**Led** to the center of the channel, the dredge will not have perrmed her duty merely by giving her greater width of the channel than r beam. However, a dredge operar should not be expected to have e expert knowledge of pilots or to te into consideration any difficulties avigation which are neither obvis nor specifically brought to the serman's attention.

PASSING-DUTIES OF THE SHIP

The ship has a corresponding duty be prompt in passing. But this is not mean that she should speed. Fre Pilot Rules provide,

Vessels, with or without tows, passing floating plant working in channels, shall reduce their speed sufficiently to insure the safety of both the plant and themselves, and when passing within 200 feet cf the plant their speed shall not

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exceed 5 miles per hour. While passing over lines of the plant, propelling machinery shall be stopped.

Vessels whose draft permits shall keep outside of the buoys marking the end of mooring lines of floating plant working in channels.¹⁰

The reference to "lines" is presumably to wires and hawsers, which might become entangled in a propeller, rather than to pipes, which are not disturbed by propellers (unless of course at such shallow depth as to be struck by them).

Similar restrictions of speed in passing will be found in the Army Engineers' regulations. Thus in waters tributary to the Gulf of Mexico, these provide,

A vessel shall reduce its speed sufficiently to prevent any damage when approaching another vessel in motion or tied up, * * *



ROBERT A. FELTNER

works under construction, plant engaged in river and harbor improvements, * * * or any other manner of structure or improvements likely to be damaged by collision, suction or wave action.

* * * Vessels on meeting or overtaking shall give the proper signals and pass in accordance with Federal Pilot Rules. * * All vessels approaching dredges or other plant engaged in improvements to a waterway shall give the signal for passing and slow down sufficiently to stop if ordered or if no answering signal is received. On receiving the answering signal, they shall then pass at a speed sufficiently slow to insure safe navigation. Vessels approaching an intersection or bend where the view is obstructed must exercise due caution.¹¹

If the dredge has done her dutyproviding adequate room to pass, if passing signals have been exchanged. or refraining from further obstructing the vessel's course if no such signals have been exchanged-the courts then generally put upon the ship the burden of carrying out the passing successfully. In many cases, ships have been held at fault for attempting to pass at excessive speed. Where they have sheered, this has been attributed to such speed or to faulty navigation. It is evident that the changes which the dredge has made in the contour of the channel can substantially affect bank and bottom suction, but the courts have not deemed this an adequate excuse. The only cases in which a ship was not held liable for collision with a properly positioned dredge arose out of two incidents in the Neches River. A district judge in the Southern District of Texas held in each case that the ship's sheer was "one of those unexplainable incidents which frequently occur in the navigation of vessels."

SUMMARY AND CONCLUSIONS

The law relating to ship-dredge collisions is not simple. Mastery of even the basic rules set forth in this article will not be easy for many pilots and dredge operators. However, participation in numerous cases and reading the courts' decisions in others leaves a strong impression that safety does not demand erudition. Most accidents could have been avoided if only those in charge of the vessels had kept in mind two basic requirements: information and courtesy.

Information means that each vessel will learn as much as possible about the problems of the other, and tell the other as much as possible of her own needs. She will do this by radio if possible, and in any event by proper whistle signals. Nothing will be assumed.

Courtesy means that each vessel will do what she can to accommodate herself to the needs of the other. The ship will slow down while still far enough away to study the situation, and stop if her pilot sees, or is warned, that passage is not yet safe, and will then pass at a moderate speed. The dredge will be prompt in signalling and in making available to the ship as much of the channel as it can.

By these simple measures, our ship channels can be made far safer for our great waterborne commerce.

^{*} Izland waters, 33 CFR, sec. 80.31; same Western Rivers, sec. 95.65, and on the mat Lakes, sec. 201.15.

¹⁰ Inland waters. 33 CFR, secs. 80.27 and 80.28; corresponding provisions for Western Rivers, secs. 95.61 and 95.62, and for the Great Lakes, secs. 201.11 and 201.12. ¹¹ CFR, sec. 207.180 (e) (3) (ii) and (e) (6); similar provisions covering the waters from Chesapeake Bay to Florida, sec. 207.160(f) (3) and (6); from Delaware River to Chesapeake Bay, sec. 207.00(f); and in the Cape Cod Canal, scc. 207.00(f); Pilots will also keep in mind specific speed limits in various waters.

Navigational Safety

By Captain F. H. Graham



The article following and the one on the facing page are reprinted through the kind permission of THE LIFE PRESERVER of the Socony Mobil Oil Co. They relate in some well chosen words the seafarer's universal message of vigilance and common sense.

First, last, and all the time, masters are responsible for the safety of their ships, irrespective of the number of watch-keeping officers on the bridge. Courts of enquiry have months to ponder over cases, whilst the master may have but a few minutes or even seconds to decide what action he should take.

Navigation in the open sea is quite straightforward and, apart from the "Ordinary Practices of Seamen," no special measures need be formulated. But restricted and crowded waters are the areas in which extra vigilance is most necessary. It is not a bit of good relying on "the other ship" until she is "finally past and clear." Naturally, this means additional time spent on the bridge for masters. It has been argued that a licensed watch officer should be trusted completely, to which I agree in principle; but two heads are better than one. Masters and watch officers should freely discuss any existing problem or situation, and if the officer thinks a wrong decision is about to be made he should not be afraid to say so.

Many vessels have collided in dense fog because one or both were traveling at an excessive speed. In these days of radar-assisted navigation, there is little excuse for any such accident. It has been stressed on many an occasion to reduce speed in "fog, mist, falling snow, or heavy rainstorms," but many masters fail to do so probably because they, or their owners, wish the vessel to berth at a certain time. But holding to such a reason can be professionally suicidal—for the master. It is a MUST that vessels proceed at "a moderate speed," able to stop dead in the wata in as short a time as possible.

It should be impressed on all deck officers that the rada unit should be put into operation in good time befor the vessel enters a fog bank or rain squall. This write suggests that masters should themselves check the rada echoes of other ships in conjunction with the watch officer He is not doing anything helpful staring blindly into fo or rain; by checking himself, he is in a better position evaluate a situation than by listening to the officer callin out relative bearings, courses, and speeds.

An 11½-knot ship was proceeding in a 7-knot convor The master was the vice-commodore, leading a column Unfortunately there was thick fog all the time en route and the master had the misfortune to collide with a vess approaching on an intercepting course. At the resultin court of enquiry he lost the case, being told: "Never min the convoy; forget the convoy speed; Admiralty orden have no bearing on the case. YOU were not proceedin at a moderate speed." If such a verdict can be given during a war, what hope has a master in time of peace?

Summing up: Navigational Safety depends on strict adhering to the International Regulations for Preventin Collisions at Sea; if necessary, additional hours on th bridge for the master; PLAIN COMMON SENSE: Los time rather than your ship.

The author of this article is the commodore of the flee of Mobil Shipping Co. Ltd. of England. He earned hi master's license in 1930 and since that time has commanded 22 Mobil tankers. He became commodore of th Socony Vacuum Transportation Co. fleet in 1958, transferred to Mobil Shipping Co. Ltd. in 1962, and was escalated to commodore in 1964.

SAFETY IN NAVIGATION

BY Capt. Alex C. McKinney



"Safety in Navigation" brings immediately to my mind port entry and clearance, and the navigational problems encountered which are peculiar to inland waters.

I do not mean to imply, by any means, that hazards at mea are nonexistent. However, with all of the electronic aids to navigation which are now available as supplementary checks on sights by sextant, soundings and bearings, and with the exercise of constant vigilance, navigational hazards in the open seaway can be reduced to a minimum level.

The restrictive dimensions of port entrance channels, the currents, the bends, and the traffic on inland waterrays, present some special problems of passing situations with very narrow clearances, and thus greater potential for collision. In addition to these elements, there are miner factors which "compound" the safety hazards in restricted waters. Among these are the following:

1. Rules of the road may be misunderstood or mis-

2. Pilots sometimes lack intimate familiarity with **lead**weight vs. horsepower ratio, particularly of the larger **ressels**.

3. The peculiarities of maneuvering due to suction in **marrow** channels.

One remedy to the problem of misunderstanding and resconstrual of the rules of the road is found in the use of diotelephone. The early use of radiotelephone can reablish and confirm a passing situation, and thus save a residerable amount of embarrassment. Recently, Gulfset Coast vessels have been equipped with VHF radiolephones for the express purpose of improving bridge-toridge communications when transiting inland waters. gain, use of VHF or 2-megacycle telephones must be c.sidered as only a supplement to the requirement that histle signals be sounded to conform with rules of the d. To some it might seem extraneous to sound a histle signal, but in the event of collision, it could be fault of both vessels for failure to sound the usual perting and passing signals.

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I have found that pilots in the Sabine area are well versed in the maneuvering of tankers. In the New York area, the use of company-employee pilots, who are intimately familiar with the maneuverability of our vessels, is of considerable advantage from a safety standpoint. We are also fortunate in that most of the pilots we employ in most of the other ports of call have had many years of experience in the handling of our ships. Pilots should be well advised as to draft, deadweight, backing down power, and the vessel's inland water maneuvering speeds, as established by the master. Nevertheless, there are occasional situations when pilots are unable to comprehend the weight and limited maneuverability of a large loaded tanker, and the master must constantly be alert to the limited knowledge of any pilot employed.

Suction is used in narrow channels as an aid to turning a sharp bend, and can, in this respect, be very helpful. Suction, on the other hand, can be dangerous when two vessels are passing. For instance, it is the usual practice in the Sabine-Neches Waterway for meeting vessels to remain in midchannel until approximately a ship length apart, and then change course for a passing. This maneuver avoids suction on the part of either vessel. "Squat" is a well known condition which occurs when excessive speed is used. Usually a difficulty in steering will be the first indication that a vessel is near the depth limitation. A speed reduction will correct this condition.

These are some of the reasons why it is my feeling that the slogan "Constant Vigilance is the Price of Good Navigation" is particularly true when entering and leaving port, and on inland waterway passages.

Like Captain Graham, Captain McKinney has long served the Mobil fleet as one of its commanders. He is a 1933 graduate of the New York Maritime Academy. His first command was in 1943. He has since served as harbor master at Covenas, Colombia; advisor to the Colombian Navy and as master of Mobil super tankers.

FORTUNATELY

ΒY

Lt. Frank R. Grundman, USCG

Paramount among the justifications for a standardized marine inspection system is that it serves to avert many accidents before they have a chance to happen. The following experience by a marine inspector points up once again this most important virtue of the program. YOU ARE DOWNBOUND on the Great Lakes, loaded with ore. As you approach the St. Clair River, a motorboat cuts across your bow requiring an immediate, "HARD RIGHT RUD-DER". The danger passes—but as the helmsman brings the wheel amidships, the rudder continues to travel to the left; then it reverses and oscillates violently between 15° right and 15° left. The movement of the rudder is stopped only by securing the steam to the steering engine. You shift your steering control, but in the confusion, the vessel runs hard aground. A true story? A captain's nightmare? It could be both.

Fortunately the rudder action described above was observed during a midperiod reinspection steering gear test. Gyro electric was the vessels primary method of steering control used in conjunction with a hydraulic telemotor. The electric control proved satisfactory, but when using the pilothouse telemotor, the malfunction could be initiated at will.



Figure 1

TELEMOTOR OPERATION

The plunger type hydraulic telemotor system consists of a pair of transmitting plungers (forward telemotor) in the pilothouse connected by hydraulic piping to a pair of receiving plungers (after telemotor) in the steering engineroom. When the steering wheel on the forward telemotor is rotated, a rack pinion rotates, forcing one plunger downward and the other plunger upward. In the cylinder in which the plunger is forced downward, the oil pressure is increased. The pressure is transmitted by piping to one end of a double cylinder in the after telemotor. This pressure causes movement of the double cylinder against a spring which tends to hold the cylinder in a central position. A link attached to the double cylinder then transmits movement to the steering gear. It is also necessary to provide a means for equalizing the system at zero rudder angle because of leakage, etc. In the system at hand this is done by a cam-operated equalizing valve.

THE PROBLEM

The casualty described in the introduction was caused by an old familiar problem, air in the oil system; except that in this case it was a relatively large volume of air. Air is a gas and compressible; all gas is compressible; oil is a liquid and practically incompressible and, of course, telemotors were designed for oil and are very sensitive (in an unpredictable way) to air.

The receiving end of the telemotor can never really figure out what signal is being sent when it is also working against a cushion of air. Now the question is, how did a large volume of air get into the oil system?

A side section of the forward telemotor is shown in fig. 2. There is an oil reservoir in the area marked (X). Note carefully the vertical location of the sight glass (L)

and vent connection (A). The details of the vent valve (H) and manual bypass valve (D) are shown in fig. 1.

For electric steering, the bypass valve (D) is open, permitting oil to bypass the plungers and move freely in the piping. Now, if the oil level (L) in the reservoir falls below the vent connection (A) and the vent valve (H) is not tightly secured, it is only a matter of time until the whole system is contaminated with air. Result: A method of steering control which is literally uncontrolable.

CONCLUSIONS

During the steering gear tests, it seemed that the erratic operation could only be initiated by moving the rudder greater than 10°. It therefore appears that a telemotor can trap large volumes of air in the system which may go unnoticed, if, for example, you are steaming steady and not using much rudder.

The important points to remember are: (1) know your operating procedure; keep the vent valve secured tightly except when charging and venting; and (2) watch your telemotor oil level; then regardless of whether or not the vent valve is open, air may not enter at this point.

LT GRUNDMAN is a 1958 graduate of the U.S. Coast Guard Academy presently serving as a Marine Inspector at Cleveland, Ohio. Past assignments have included both deck and engineering duties aboard ocean station vessels; Marine Inspection duties in New York; Staff, Chief, Merchant Marine Safety Division, 3d Coast Guard District; and a special assignment to Staff, Commander, U.S. Nary Second Fleet.



DEATH FROM BENZENE VAPORS

Two men were in the rake compartment of a benzene loaded tank barge changing a flange on a cargo line. In the process, some benzene ran out of the line and into the rake. After that, one of the men remembers only that he tightened a few bolts. His next recollection was that he was on deck in the midst of a cluster of people. Witnesses say that he was found staggering about on deck mumbling incoherently. He was heard to say something about "the man with me." Someone on deck looking into the hatch saw the other man lying unconscious within the rake compartment.

LESSONS FROM CASUALTIES

Two other men, at considerable risk to themselves, entered the compartment and lifted the second victim out and onto the deck, but it was too late. He was already dead. The men who made the rescue attempt had themselves become quite dizzy from the fumes.

The amount of benzene which caused this casualty? An estimated 2 guarts!

After the accident, the cargo piping and fittings were relocated on deck, in the open.

The lessons to be learned from this tragic occurrence are:

(a) Cargo piping for volatile materials should be arranged so that no routine valving, flanging, or coupling operations need be done in confined spaces.

(b) When working in a space where a spill of a volatile chemical is likely, a breathing apparatus should be close at hand and ready for use.

(c) Chemical vapors are dangerous, particularly in poorly-ventilated spaces.

(d) It doesn't take a large amount of toxic material to generate a lethal concentration of vapor.

(e) If a volatile liquid spills in a space where you are working, get out and don't re-enter until you are sure it is safe to do so.

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Additional Items Announced for Public Hearing

TO THE FIRST 10 items published in Federal Register of January 27, 1965, and additionally in the Merchant Marine Council Public Hearing Agenda (CG-249) dated March 22, 1965, and in the *Proceedings* of February 1965, have been added several supplementary items.

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These additional proposed changes in the regulations will be considered by the Merchant Marine Council at the public hearing on March 22, 1965. The complete text of the proposed changes and additions to the regulations is set forth in the "Merchant Marine Council Public Hearing

Agenda, Volume II" (CG-249), dau March 22, 1965. Copies of th Agenda are, like volume I, mailed persons and organizations who has expressed a continued interest in t subjects under consideration an have requested that copies be fu nished them. Copies of the Agend Volume II will be furnished, up request to the Commandant (CMC U.S. Coast Guard, Washington, D. 20226, so long as they are availab After the supply of extra copies exhausted copies will be available, fi reading purposes only, in Room 421 Coast Guard Headquarters, or at t offices of the various Coast Guar District Commanders.

Comments on the proposed regul tions are invited. Written commen containing constructive criticis suggestions, or views are welcome

ITEM X—SPECIFICATIONS AND APPROVALS OF EQUIPMENT (Continued)

Additional equipment specification revisions are proposed. These specification requirements govern the manufacturers of approved equipment, which equipment may then be used on board vessels in accordance with specific regulations governing various categories of vessels as set forth in Chapter I of Title 46, CFR.

Xi-BACKFIRE FLAME CONTROL, GASOLINE ENGINES

Amending of 46 CFR 162.015-1 to 162.015-6, inclusive, is proposed to make the regulations clear to all concerned and to facilitate enforcement. The title of subpart 162.-015 is to be changed from "Flame Arresters, Backfire (for Carburetors), for Merchant Vessels and Motorboats," to "Backfire Flame Control, Gasoline Engines," in order to better describe the field which is covered by the revised specification. This proposal will, therefore, revise the specification in its entirety.

The proposed scope of the specification defines the acceptable methods of adequate backfire flame control by providing for three methods; i.e., a backfire flame arrester; an engine air and fuel induction system designed to provide protection from the propagation of backfire flame to the atmosphere; and an engine air induction system designed so that any flames caused by engine backfire will be dispersed to the atmosphere outside the vessel in such a manner that the flames will not endanger the vessel or persons on board. It is also proposed to define a "backfire flame arrester" as meaning the complete assembly rather than just the grid element alone.

It is further proposed to require the marking of all component parts of a backfire flame arrester assembly, as well as require Coast Guard approval numbers to be in the marking for all backfire flame control installations.

On January 1, 1966, all approvals issued prior to January 1, 1965, are to be terminated except in the case of those backfire flame control installations which comply with the proposed new specification in all respects, in which case the approval will be issued for the usual 5-year period. Previously approved flame arresters may be continued in service as long as they are in good, serviceable condition.

Xj-PACKAGED BOILERS

Amending of 46 CFR 162.026-1 to 162.026-17, inclusive, is proposed to improve the overall arrangement, to better

define the various controls that are currently being privided on package boilers, and to modify the sequence operation to more nearly comply with current industristandards pertaining to sequencing. These propositions also define the predominant combustion contains systems now being furnished on packaged boilers. The proposed changes include new requirements cover ignition transformers, fuel pumps, and strainers.

ITEM XI-PRESSURE VESSELS

XIa—ACCEPTANCE OF ADDITIONAL COPPER NICKEL ALLOY MATERIAL FOR PRESSURE VESSELS

Amending of 46 CFR 51.67-1 and 54.03-10(c) is propos to revise Tables 51.67-1 and 54.03-10(d) to allow the u of copper nickel alloy materials meeting the America Society of Testing Materials, (ASTM), specification B-4 for the pressure parts of vessels. This proposal is a greement with the latest revisions to the American S ciety of Mechanical Engineers' Code and the AST Standards.

XIb-HYDROSTATIC TESTING OF UNFIRED PRESSURE VESSELS

Amending of 46 CFR 61.25–15 is proposed to modify thy hydrostatic testing of unfired pressure vessels. The changes are in conformance with the latest knowledge at experience of industry and the requirements of the American Society of Mechanical Engineers' Boiler and Pressure Vessel Code.

It is proposed not to require hammer testing during a hydrostatic test.

In order to have standardization of wording through the regulations, it is also proposed to amend 46 CFR 52.7 25(b), 52.70-50(a), 53.03-75(c), 54.03-1(b), 54.03-27(a)54.07-25(b), 55.13-10, 55.17-30(c), 61.40-1(a), 61.40-5the Marine Engineering Regulations. Additionally, it proposed to revise the marking requirements in the Car and Miscellaneous Vessel Regulations in 46 CFR 98.2 15(a), 98.25-15(a), and 98.25-95(b) to be consistent wi new nomenclature in the pressure vessel regulations 46 CFR Parts 52 to 61, inclusive. Cryogenic vessels do n necessarily have their maximum allowable pressures equations their design pressures. In conventional vessels up design and maximum allowable pressures are equal practically every case.

> WRITTEN COMMENTS MUST BE SUBMITTED IN TRIPLICATE PRIOR TO MARCH 19, 1965

1960 AND 1948 INTERNATIONAL RULES COMPARED: REVISIONS OF RULES 9 THROUGH 13 EXPLAINED

This fifth article of a series continues the comparison of the 1948 International Rules of the Road pres-

FART B-LIGHTS AND SHAPES

LIGHTS ETC. FOR FISHING VESSELS

RULE 9

1960 INTERNATIONAL RULES

(a) Fishing vessels when not enregred in fishing shall show the lights a shapes for similar vessels of their length.

(b) Vessels engaged in fishing, then under way or at anchor, shall show only the lights and shapes precribed in this rule, which lights and hapes shall be visible at a distance of at least 2 miles.

c) (i) Vessels when engaged in trawling, by which is meant the draging of a dredge net or other apparates through the water, shall carry two lights in a vertical line, one over the other, not less than 4 feet nor here than 12 feet apart. The upper t these lights shall be green and the tweer light white and each shall be easible all round the horizon. The there of these two lights shall be carticed at a height above the side lights at less than twice the distance betreen the two vertical lights.

(ii) Such vessels may in addition erry a white light similar in confunction to the white light prescribed Rule 2(a) (i) but such light shall carried lower than and abaft the **I-round** green and white lights.

•d) Vessels when engaged in fishexcept vessels engaged in trawlg shall carry the lights prescribed r section (c) (i) except that the upper f the two vertical lights shall be red. Such vessels if of less than 40 feet r length may carry the red light at height of not less than 9 feet above he gunwale and the white light not set than 3 feet below the red light.

e) Vessels referred to in sections and (d), when making way brough the water, shall carry the delights or lanterns prescribed in the 2(a) (iv) and (v) or Rule 7 (a) if or (d), as appropriate, and the tern light prescribed in Rule 10. Then not making way through the ter they shall show neither the delights nor the stern light.

f. Vessels referred to in section F with outlying gear extending are than 500 feet horizontally into re seaway shall carry an additional round white light at a horizontal searce of not less than 6 feet nor are than 20 feet away from the ver-

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ently in use with the revised 1960 International Rules which will become effective on 1 September 1965.

tical lights in the direction of the outlying gear. This additional white light shall be placed at a height not exceeding that of the white light prescribed in section (c) (i) and not lower than the sidelights.

(g) In addition to the lights which they are required by this rule to carry. vessels engaged in fishing may, if necessary in order to attract the attention of an approaching vessel, use a flareup light, or may direct the beam of their searchlight in the direction of a danger threatening the approaching vessel, in such a way as not to embarrass other vessels. They may also use working lights but fishermen shall take into account that specially bright or insufficiently screened working lights may impair the visibility and distinctive character of the lights prescribed in this rule.

(h) By day vessels when engaged in fishing shall indicate their occupation by displaying where it can best be seen a black shape consisting of two cones each not less than 2 feet in diameter with their points together one above the other. Such vessels if of less than 65 feet in length may substitute a basket for such black shape. If their outlying gear extends more than 500 feet horizontally into the seaway vessels engaged in fishing shall display in addition one black conical shape, point upwards, in the direction of the outlying gear.

Note: Vessels fishing with trolling lines are not "engaged in fishing" as defined in Rule 1(c) (xiv).

Changed. 1948 Rule read:

(a) Fishing vessels when not fishing shall show the lights or shapes prescribed for similar vessels of their tonnage. When fishing they shall show only the lights or shapes prescribed by this rule, which lights or shapes, except as otherwise provided, shall be visible at a distance of at least 2 miles.

(b) Vessels fishing with trolling (towing) lines, shall show only the lights prescribed for a power-driven or sailing vessel underway as may be appropriate.

(c) Vessels fishing with nets or lines, except trolling (towing) lines, extending from the vessel not more than 500 feet horizontally into the seaway shall show, where it can best be seen, one all round white light and in addition, on approaching or being approached by another vessel, shall show a second white light at least 6 feet below the first light and at a horizontal distance of at least 10 feet away from it (6 feet in small open boats) in the direction in which the outlying gear is attached. By day such vessels shall indicate their occupation by displaying a basket where it can best be seen; and if they have their gear out while at anchor, they shall, on the approach of other vessels, show the same signal in the direction from the anchor ball towards the net or gear.

(d) Vessels fishing with nets or lines, except trolling (towing) lines, extending from the vessel more than 500 feet horizontally into the seaway shall show, where they can best be seen, three white lights at least 3 feet apart in a vertical triangle visible all round the horizon. When making way through the water, such vessels shall show the proper colored sidelights but when not making way they shall not show them. By day they shall show a basket in the forepart of the vessel as near the stem as possible not less than 10 feet above the rail; and, in addition, where it can best be seen, one black conical shape, apex upwards. If they have their gear out while at anchor they shall, on the approach of other vessels, show the basket in the direction from the anchor ball towards the net or gear.

(e) Vessels when engaged in trawling, by which is meant the dragging of a dredge net or other apparatus along or near the bottom of the sea, and not at anchor:

(i) If power-driven vessels, shall carry in the same position as the white light mentioned in Rule 2(a) (i) a tri-colored lantern, so constructed and fixed as to show a white light from right ahead to 2 points (221/2 degrees) on each bow, and a green light and a red light over an arc of the horizon from 2 points (221/2 degrees) on each bow to 2 points (22½ degrees) abaft the beam on the starboard and port sides, respectively; and not less than 6 nor more than 12 feet below the tri-colored lantern a white light in a lantern, so constructed as to show a clear, uniform, and unbroken light all round the horizon. They shall also show the stern light specified in Rule 10(a)

(ii) If sailing vessels, shall carry a white light in a lantern so constructed as to show a clear, uniform, and unbroken light all around the horizon, and shall also, on the approach of or to other vessels show, where it can best be seen, a white flareup light in sufficient time to prevent collision.

(iii) By day, each of the foregoing vessels shall show, where it can best be seen, a basket. (f) In addition to the lights which they are by this rule required to show vessels fishing may, if necessary in order to attract attention of approaching vessels, show a flareup light. They may also use working lights.

(g) Every vessel fishing, when at anchor, shall show the lights or shape specified in Rule 11 (a), (b) or (c); and shall, on the approach of another vessel or vessels, show an additional white light at least 6 feet below the forward anchor light and at a horizontal distance of at least 10 feet away from it in the direction of the outlying gear.

(h) If a vessel when fishing becomes fast by her gear to a rock or other obstruction she shall in daytime haul down the basket required by sections (c), (d) or (e) and show the signal specified in Rule 11(c). By night she shall show the light or lights specified in Rule 11 (a) or (b). In fog, mist, falling snow, heavy rainstorms or any other condition similarly restricting visibility, whether by day or by night, she shall sound the signal prescribed by Rule 15(c) (v), which signal shall also be used, on the near approach of another vessel, in good visibility.

PRIMARY CHANGES

1. The rule has been altered to a large degree. Although this is not a change it should be explained that, in the 1969 Rule 9, vessels "engaged in fishing" means fishing with nets, lines or trawls but, the definition in Rule 1(c) (xiv) excludes vessels fishing with trolling lines. The most basic change is that vessels engaged in trawling are, in general, to show "green over white' lights while those engaged in fishing, except trawling, are required to show "red over white" lights. This replaces the 1948 Rule 9 lights which generally consisted of a tricolored lantern, an all around white light, or a triangular pattern of 3 white lights. In summary, under the 1960 Rule a colored light over a white light identifies a vessel as engaged in fishing and the color of the upper light indicates the degree to which the vessel is hampered.

2. When making way through the water, vessels engaged in fishing (which includes trawling) are now required to show sidelights as required by Rule 2 or Rule 7 (dependent upon their length) and the stern light of Rule 10. When dead in the water they show neither sidelights nor stern light.

3. Vessels engaged in trawling may carry a sort of range light aft and lower than the "green over white" lights. Further, there is no differentiation between power-driven and sailing vessels engaged in trawling, as had been done in the 1948 Rule 9. 4. The 1960 Rule also requires, in the case of a vessel engaged in fishing, except a vessel engaged in trawling, a white light in the direction of the gear if it extends more than 500 feet horizontally into a seaway.

5. The day shape for vessels engaged in fishing has been altered in that the 1960 rule requires such vessels to show two black cones with their points together, one above the other, plus a black conical shape, point upward, in the direction of outlying gear if it extends more than 500 feet horizontally into a seaway.

6. The use of "working lights" is still allowed but the rule now adds the qualifying information that fishermen must take into account that the visibility and distinctive character of required navigation lights may be impaired by "specially bright or insufficiently screened working lights." Vessels engaged in fishing may use a flareup light to attract attention or direct their searchlight in the direction of a danger threatening an approaching vessel. Here, too, a caution has been added concerning this use of a searchlight.

7. Vessels engaged in fishing and at anchor show neither the lights nor shapes of Rule 11. Instead, by night such vessels show the lights of Rule 9 for a vessel engaged in fishing, except for the sidelights and stern light which should not be shown. By day, such vessels show only the shapes of Rule 9.

8. There is no specific provision incorporated into the 1960 rules for a vessel which, when fishing, ". . . becomes fast by her gear to a rock or other obstruction. . . ." It appears that a vessel in such a condition should show the lights or shapes of Rule 4(c) as a vessel engaged in underwater operations, the nature of which makes her unable to get out of the way of approaching vessels. The requirement that a fishing vessel "fast by her gear to a rock or other obstruction" sound the signal of Rule 15(c)(v) during restricted visibility continues to exist; however, this signal is no longer allowed in good visibility as a warning to approaching vessels.

9. In keeping with the overall change to the rules, length rather than tonnage is used to classify vessels coming under this rule.

STERN AND TAIL LIGHTS

RULE 10

1960 INTERNATIONAL RULES

(a) Except where otherwise provided in these rules, a vessel when underway shall carry at her stern a white light, so constructed that it shall show an unbroken light over an arc of the horizon of 135 degrees (12 points of the compass), so fixed as to show the light $67\frac{1}{2}$ degrees (6 points) from right aft on each side of the vessel, and of such a character as to be visible at a distance of at least 2 miles.

Changed. The 1948 Rule read:

(a) A vessel when underway shall carry at her stern a white light, so constructed that it shall show an unbroken light over an arc of the horizon of 12 points of the compass (135 degrees), so fixed as to show the light 6 points ($67\frac{1}{2}$ degrees) from right aft on each side of the vessel, and of such a character as to be visible at a distance of at least 2 miles. Such light shall be carried as nearly as practicable on the same level as the side-lights.

(b) In a small vessel, if it is no possible on account of bad weather or other sufficient cause for this ligh to be fixed, an electric torch or lighted lantern showing a white ligh shall be kept at hand ready for us and shall, on the approach of an overtaking vessel, be shown in sufficient time to prevent collision.

Changed. The 1948 Rule read:

(b) In a small vessel, if it is not possible on account of bad weather or other sufficient cause for this light to be fixed, an electric torch or a lighted lantern shall be kept at hand ready for use and shall, on the approach of an overtaking vessel, be shown in sufficient time to prevent collision.

(c) A seaplane on the water when underway shall carry on her tail white light, so constructed as to show an unbroken light over an arc of the horizon of 140° of the compass, s fixed as to show the light 70° from right aft on each side of the seaplant and of such a character as to be visible at a distance of at least 2 miles.

(Same as 1948 Rule)

PRIMARY CHANGES

1. Section (a) has been reworded a that it applies "except where other wise provided in these Rules." The is necessary since Rules 4 and 9 no specify that the stern light (and side lights) shall not be shown when applicable vessels are underway but no making way through the water.

2. Additionally, the requirement that the stern light be carried a nearly as practicable on the same level as the sidelights has been deleted.

3. The light of section (b) is not specifically required to be a whilight.

ANCHOR LIGHTS

RULE 11

1960 INTERNATIONAL RULES

a) A vessel of less than 150 feet m length, when at anchor, shall carry in the forepart of the vessel, where, it can best be seen, a white light visible all round the horizon at a distance of at least 2 miles. Such a vessel may also carry a second white light in the position prescribed in section (b) of this Rule but shall not be required to do so. The second white light, if carried, shall be visible at a distance of at least 2 miles and so placed as to be as far as possible visilie all round the horizon.

Changed. 1948 Rule reads:

(a) A vessel under 150 feet in length, when at anchor, shall carry in the forepart of the vessel, where it can best be seen, a white light in a lantern so constructed as to show a clear, uniform, and unbroken light visible all round the horizon at a distance of at least 2 miles.

b) A vessel of 150 feet or more in kength, when at anchor, shall carry mear the stem of the vessel, at a height of not less than 20 feet above the height, one such light, and at or near the stern of the vessel and at such a height that it shall be not less than 15 feet lower than the forward light, is that it shall be not less than 15 feet lower than the forward light, shall be visible at a distance of at heast 3 miles and so placed as to be as far as possible visible all round the horizon.

Changed. 1948 Rule reads:

(b) A vessel of 150 feet or upwards in length, when at anchor, shall carry in the forepart of the vessel, at a height of not less than 20 feet above the hull, one such light, and at or near the stern of the vessel and at such a height that it shall be not less than 15 feet lower than the forward light, another such light. Both these lights shall be visible all round the horizon at a distance of at least 3 miles.

c) Between sunrise and sunset very vessel when at anchor shall arry in the forepart of the vessel, here it can best be seen, one black of less than 2 feet in diameter.

(Same as 1948 Rule)

d) A vessel engaged in laying or picking up a submarine cable or sigation mark, or a vessel engaged surveying or underwater operaters, when at anchor, shall carry the lights or shapes prescribed in Rule or in addition to those prescribed

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in the appropriate preceeding sections of this Rule.

(Same as 1948 Rule)

(e) A vessel aground shall carry the light or lights prescribed in sections (a) or (b) and the two red lights prescribed in Rule 4(a). By day she shall carry, where they can best be seen, three black balls, each not less than 2 feet in diameter, placed in a vertical line one over the other, not less than 6 feet apart.

(Same as 1948 Rule)

(f) A seaplane on the water under 150 feet in length, when at anchor, shall carry, where it can best be seen, a white light, visible all round the horizon at a distance of at least 2 miles.

(Same as 1948 Rule)

(g) A seaplane on the water 150 feet or upwards in length, when at anchor, shall carry, where they can best be seen, a white light forward and a white light aft, both lights visible all round the horizon at a distance of at least 3 miles; and, in addition, if the seaplane is more than 150 feet in span, a white light on each side to indicate the maximum span, and visible, so far as practicable, all round the horizon at a distance of 1 mile.

(Same as 1948 Rule)

(h) A seaplane aground shall carry an anchor light or lights as prescribed in sections (f) and (g), and in addition may carry two red lights in a vertical line, at least 3 feet apart, so placed as to be visible all round the horizon.

(Same as 1948 Rule)

PRIMARY CHANGES

1. A vessel of less than 150 feet in length is now permitted to show both forward and after anchor lights, although only the forward light is mandatory.

2. The forward anchor light of Rule 11(b) is now required to be carried "near the stem" in lieu of "in the forepart of the vessel." Further, with the exception of the mandatory anchor light for vessels of less than 150 feet in length, anchor lights are now to be "as far as possible visible all round the horizon," a relaxation of the previously specified "all round" anchor lights.

SPECIAL SIGNALS

RULE 12

1960 INTERNATIONAL RULES

Every vessel or seaplane on the water may, if necessary in order to attract attention, in addition to the lights which she is by these rules required to carry, show a flareup light or use a detonating or other efficient sound signal that cannot be mistaken for any signal authorized elsewhere under these rules.

(Same as 1948 Rule)

PRIMARY CHANGES

The shape required of vessels propelled by sail and power is unchanged except that it is now required to be carried point downwards. This has been done to remove the conflict with a similar shape of Rule 9 which is required to be carried point upwards.

NAVA'L LIGHTS AND RECOGNITION SIGNALS

Rule 13

1960 INTERNATIONAL RULES

(a) Nothing in these rules shall interfere with the operations of any special rules made by the government of any nation with respect to additional station and signal lights for ships of war, for vessels sailing under convoy, for fishing vessels engaged in fishing as a fleet or for seaplanes on the water.

Changed. 1948 Rule reads:

(a) Nothing in these rules shall interfere with the operation of any special rules made by the government of any nation with respect to additional station and signal lights for ships of war, for vessels sailing under convoy, or for seaplanes on the water; or with the exhibition of recognition signals adopted by shipowners, which have been authorised by their respective governments and duly registered and published.

(b) Whenever the government concerned shall have determined that a naval or other military vessel or waterborne seaplane of special construction or purpose cannot comply fully with the provisions of any of these rules with respect to the number, position, range or arc of visibility of lights or shapes, without interfering with the military function of the vessel or seaplane, such vessel or seaplane shall comply with such other provisions in regard to the number, position, range or arc of visibility of lights or shapes as her government shall have determined to be the closest possible compliance with these rules in respect of that vessel or seaplane.

(Same as 1948 Rule.)

PRIMARY CHANGES

Reference to shipowner's recognition signals has been deleted and "fishing vessels engaged in fishing as a fleet" has been added.



MARITIME SIDELIGHTS

COAST GUARD AIDS ARMY ENGINEERS IN GREAT LAKES ICE STUDY

A thorough knowledge of the effect of ice and snow is vital to the welfare of Great Lakes residents, manufacturers and shipping interests. Because water supply to the lakes, navigation, manmade structures, shorelines, and power generation are affected, each winter the U.S. LAKE SURVEY of the U.S. Army Corps of Engineers conducts aerial flights over these waters to gather data about the ice coverage on the American portion of the lakes for use in its research program. The Canadian Department of Transport, Meteorology Branch, performs similar operations on the Canadian side. The two agencies, through reciprocal agreement, exchange information and coordinate flight plans to obtain the maximum possible coverage.

Data collected includes the extent of ice coverage, location, breakup, movement and age. In addition, the time of formation, deterioration and final decay are observed, along with any other features which might be pertinent.

Flight support is supplied by the U.S. Coast Guard Air Station at Traverse City.

NEW MARITIME TRAINING

The Maritime Administration has announced the opening of a new maritime training school in New York for the training of deck-engine mechanics and enginemen; a new rating established for automated and semiautomated ships. The school will also provide a familiarization course for marine electricians who expect to sail on these vessels.

The school, located at 346 Broadway, New York, is the product of joint efforts of labor, management and government. ‡

PILOTS ASSOCIATION SUPPORTS BRIDGE-BRIDGE COMMUNICATION SYSTEM

The American Pilots' Association has resolved to support a uniform system of bridge-to-bridge radio communication solely as an aid to navigation. It has appointed a special committee to prepare recommendations. The action was taken at the Association's annual meeting at Fort Lauderdale, Fla., in November 1964.

THE NS SAVANNAH, as a part of the Maritime Administration's continuing program of displaying the pioneer vessel to the widest possible audiences, recently visited Wilmington, N.C. Among the special guests welcomed aboard was Admiral J. F. Farley, former Commandant of the U.S. Coast Guard. Pictured left to right: Captain David McDaniel, Master of the Savannah, Admiral Farley, and Mayor O. O. Allsbrook of the City of Wilmington.



ANOTHER COAST GUARD RELIC RETIRED

Without fanfare, playing of band or long speeches, the U.S. Coast Guan decommissioned on January 15, Light ship 519, named the "Relief", which has warned vessels of shoals for mon than 52 years.

Since the end of World War II, th 108-foot vessel with giant white let ters spelling out "Relief" against red hull, has replaced the lightshi stations Barnegat, Five Fathom, Over falls and later the Delaware, whe the Overfalls station was discontinued. She substituted for these vesse when they came into port for repain

The little vessel began as Feder Lighthouse Service Lightship 95 whe it was commissioned on November 3 1912. Its first assignment was th Milwaukee Lightship in the Gre Lakes. This duty was halted in 193 when it was placed in storage. Afte World War II, the vessel resumed i duties at Cape May, N.J. The new "Relief" lightship for th

The new "Relief" lightship for th Delaware Bay area is the 34-year-of Lightship 537, which used to be know as the "Frying Pan" Lightship. I formerly marked the shoals 28 mile off Cape Fear, N.C. This lightshi was replaced by a new four-legge offshore light tower which marks th same shoals. This tower is simile to the one the Coast Guard plans to construct as a replacement for the Ambrose Light Vessel at the entrant to New York Harbor.

The "Relief" will be placed in stor age at Cape May pending final di posal by the Coast Guard.

SEWAGE TREATMENT IN OFFING FOR CUTTERS

In an effort to help abate the evincreasing problem of water pollution the Coast Guard will soon install sewage treatment plant aboard medium class cutter. This install tion will be the forerunner in a pr gram to so equip all cutters manne by a crew of 40 or more. The pr gram is designed to help alleviate i still another way the growing proble of harbor pollution.

CG'S AMBROSE LIGHTSHIP IS MOVED ONCE AGAIN

The U.S. Coast Guard has again repositioned its Ambrose Lightship at the entrance to New York Harbor to determine the best location for marking the entrance with a single, fixed light structure.

A second trial began Monday, February 15, when the lightship was shifted 2.2 miles to the north northeast from the first test position, some 7 miles east-southeast of Sandy Hook, N.J.

The Coast Guard held a public hearing on December 8, 1964, to determine the suitability of the initial trial position dating from June 25, 1964. The three-man Coast Guard officer board recommended that a second position be tested to determine the best possible location for a fixed tower.

The Ambrose will be on the new position 7.4 miles east of Sandy Hook for a 90-day trial period. At the end if the trial, the Coast Guard may gain hold a public hearing.

To implement the trial, the Coast Guard has relocated one buoy, estabshed two new buoys, and removed nother three which were tempoarily placed for the first trial.

A special lighted horn buoy, measring 9 feet in diameter and 42 feet rerall, to mark the entrance of Sandy Hook Channel, is one of the two new roys.

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RESSEL REPORTING SYSTEM

A Coast Guard bent for keeping ce with advances in computer sys-ms has apparently moved the day a Pacific vessel reporting system eser to reality. The expansion to erer Pacific waters has been under-ten as a direct result of upgrading e data processing capabilities at the York based AMVER* Center. the center was recomputerized with cre sophisticated equipment in Dember: Equipment that will operate times faster than its predecessor. By tying in Rescue Coordination enters in the Pacific by high-speed **Me**type lines to the AMVER Center New York, the Coast Guard will be ie to supply ship position informaar for the Pacific as well as the Atmuic, using the one computer. This cension of the system will use Coast rard Ocean Station Vessels and ra**in** stations in the Pacific to gather cormation for relay to New York for mputer processing. The informa-Pacific Search and Rescue (SAR)

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Commanders within minutes. With this additional coverage, the Coast Guard expects to have information available on over half the ships-at-sea from the Asian Mainland eastward to the coast of Europe—well over half of the maritime world.

The Coast Guard is also planning to program the new computer to solve search problems including computation of the optimum search areas, assessment of effectiveness of the search effort, and aiding in overall control of the search missions. This will be a tremendous help on large-scale searches where hundreds of sorties are flown, hundreds of variables enter the picture, and the whole operation is carried out against time—for time is a critical element when people are in distress!

The Coast Guard's Merchant Vessel Report System has gained wide acceptance among the maritime interests of the world. The success of this mutual assistance program is due primarily to the inherent humanitarian characteristic of mariners of providing assistance to their fellow seafaring men in the best tradition of the law of the sea. The knowledge that information on the position of potential rescuers is available at the speed of light from the memory of a computer can be most reassuring to the crew of a ship on its lonely passage through an unpredictable ocean.

The 1960 Safety of Life at Sea Conference in its Recommendation 47, recommended that merchant vessels should utilize the services of such a system. Besides the United States, the governments of Denmark and Malagasy operate report systems.

*With the expansion of reporting capabilities to cover the Pacific and South Atlantic, the acronym AMVER originally representing Atlantic Merchant VEssel Reporting system now represents Automated Merchant VEssel Reporting system.



In keeping with this month's theme, the Nautical Queries in this issue have been especially drawn to whet deck officers knowledge of the Rules of the Road as they relate to dredges, floating plants, pipelines and other water traffic obstructions.

Q. 1. (a) What signals shall be displayed by a dredge, held in a stationary position by spuds or mooring, during the daytime?

(b) By night?

Q. 2. (a) What signals are displayed by a self-propelled suction dredge underway and engaged in dredging operations during the daytime?

(b) By night?

Q. 3. (a) What signals are displayed by a vessel moored or anchored and engaged in laying cables or pipes, or performing submarine construction and bank grading during the daytime?

(b) By night?

Q. 4. What is the regulation in regard to lights displayed on pipe-lines?

Q. 5. Are vessels, with or without tows, required to reduce their speed when passing floating plants working in a channel? Explain.

Q. 6. Are there any regulations in regard to light-draft vessels passing floating plants? Explain.

Q. 7. Are floating plants working in navigable channels required to mark their moorings during the daytime and the night time? If so, by what means?

Q. 8. Are floating plants allowed to obstruct channels? Explain.

Q. 9. What is the regulation concerning clearing a narrow channel in which a floating plant is working?

Q. 10. What is the regulation in regard to protection of buoys and marks placed for guidance of floating plants?

Q. 11. What special signals and/ or lights are carried by vessels engaged in hydrographic surveying during the daytime, night time and when at anchor in a fairway?

Q. 12. What is the regulation in regard to the use of searchlights or other blinding lights? A. 1. Dredges held in stationary position by moorings or spuds.

(a) Dredges which are held in stationary position by moorings or spuds shall display by day two red balls not less than 2 feet in diameter and carried in a vertical line not less than 3 feet nor more than 6 feet apart, and at least 15 feet above the deckhouse and in such a position where they can best be seen from all directions.

(b) By night they shall display a white light at each corner, not less than 6 feet above the deck, and in addition thereto there shall be displayed in a position where they can best be seen from all directions two red lights carried in a vertical line not less than 3 feet nor more than 6 feet apart, and not less than 15 feet above the deck. When scows are moored alongside a dredge in the foregoing situation they shall display a white light on each outboard corner, not less than 6 feet above the deck. (33 CFR 80.20)

A. 2. Self-propelling suction dredges underway and engaged in dredging operations.

(a) Self-propelling suction dredges underway and engaged in dredging operations shall display by day two black balls not less than 2 feet in diameter and carried in a vertical line not less than 15 feet above the deckhouse, and where they can best be seen from all directions. The term "dredging operations" shall include maneuvering into or out of position at the dredging site but shall not include proceeding to or from the site.

(b) By night they shall carry, in addition to the regular running lights, two red lights of the same character as the white masthead light. and in the same vertical line beneath that light, the red lights to be not less than 3 feet nor more than 6 feet apart and the upper red light to be not less than 4 feet nor more than 6 feet below the masthead light, and on or near the stern two red lights in a vertical line not less than 4 feet nor more than 6 feet apart, to show through four points of the compass; that is, from right astern to two points on each guarter. (33 CFR 80.21)

A. 3. Vessels moored or anchored and engaged in laying cables or pipe, submarine construction, excavation, mat sinking, bank grading, dike construction, revetment, or other bar protection operations.

(a) Vessels which are moon or anchored and engaged in layin cables or pipe, submarine constrution, excavation, mat sinking, ban grading, dike construction, revetmen or other bank protection operation shall display by day, not less than 1 feet above the deck, where they cobest be seen from all directions, to balls not less than 2 feet in diameter in a vertical line not less than 3 fer nor more than 6 feet apart, the upp ball to be painted in alternate bla and white vertical stripes 6 inch wide, and the lower ball to be paint a solid bright red.

(b) By night they shall diplay three red lights, carried in a vertical line not less than 3 feet more than 6 feet apart, in a positive where they can best be seen from a directions, with the lowermost light not less than 15 feet above the definition (c) Where a stringout

moored vessels or barges is engage in the operations, three red lights ca ried as prescribed in paragraph of this section shall be displayed the channelward end of the stringo Where the stringout crosses the nat gable channel and is to be opened i the passage of vessels, the three **n** lights shall be displayed at each si of the opening instead of at the out end of the stringout. There shall so be displayed upon such stringe one horizontal row of amber ligh not less than 6 feet above the deck. above the deckhouse where the cr carries a deckhouse, in a positi where they can best be seen from directions, spaced not more than feet apart so as to mark distinctly **i** entire length and course of the strin out. (33 CFR 80.22)

A. 4. Lights to be displayed pipelines.

Pipelines attached to dredges, a either floating or supported on tratles, shall display by night one row amber lights not less than 8 feet n more than 12 feet above the wan about equally spaced and in sn number as to mark distinctly the tire length and course of the line, i intervals between lights where i line crosses navigable channels to not more than 30 feet. There sin also be displayed on the shore or di :harge end of the line two red lights, if eet apart, in a vertical line with the lower light at least 8 feet above the water, and if the line is to be opened at night for the passages of vessels, similar arrangement of lights shall be displayed on each side of the opening. (33 CFR 80.23)

A. 5. Speed of vessels passing **foating** plant working in channels.

Vessels, with or without tows, passing floating plant working in channess, shall reduce their speed sufficiently to insure the safety of both the plant and themselves, and when passing within 200 feet of the plant their peed shall not exceed 5 miles per bour. While passing over lines of the plant, propelling machinery shall be ropped. (33 CFR 80.27)

A. 6. Light-draft vessels passing fracting plant.

Vessels whose draft permits shall here outside of the buoys marking the ends of mooring lines of floating plant working in channels. (33 CFR 80.28)

A. 7. Aids to navigation marking **Exa**ting-plant moorings.

Breast, stern, and bow anchors of nating plant working in navigable mannels shall be marked by barrel **r** other suitable buoys. By night apreaching vessels shall be shown the cation of adjacent buoys by throwa suitable beam of light from the ant on the buoys until the approachvessel has passed, or the buoys be lighted by red lights, visible all directions, of the same character specified in section 80.24(a): Proied, That the foregoing provisions this section shall not apply to the wing waters of New York Harbor adjacent waters: the East River, ne North River (Battery to Spuyten the Harlem River and the York and New Jersey Channels from the Upper Bay through Kill Kull, Newark Bay, Arthur Kill, d Raritan Bay to the Lower Bay). GCFR 80.29)

A. 8. Obstruction of channel by

Channels shall not be obstructed **innecessarily** by any dredge or other **inning** plant. While vessels are **insing** such plant, all lines running **interf**rom across the channel on the **insing** side, which may interfere with **r** obstruct navigation, shall be **inched** to the bottom of the channel. **IT CFR** 80.30)

A. 9. Clearing of channels.

When special or temporary regulaters have not been prescribed and rion under the regulations contened in sections 80.26 to 80.30, intensive, will not afford clear passage, rig plant in narrow channels and upon notice, move out of the way

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of vessels a sufficient distance to allow them a clear passage. Vessels desiring passage shall, however, give the master of the floating plant ample notice in advance of the time they expect to pass.

NOTE: If it is necessary to prohibit or limit the anchorage or movement of vessels within certain areas in order to facilitate the work of improvement, application should be made through official channels for establishment by the Secretary of the Army of special or temporary regulations for this purpose. (33 CFR 80.31)

A. 10. Protection of marks placed for the guidance of floating plant.

Vessels shall not run over anchor buoys, or buoys, stakes, or other marks placed for the guidance of floating plant working in channels; and shall not anchor on the ranges of buoys, stakes, or other marks placed for the guidance of such plant. (33 CFR 80.31a)

A. 11. Special signals for vessels employed in hydrographic surveying.

By day a surveying vessel of the Coast and Geodetic Survey, underway and employed in hydrographic surveying, may carry in a vertical line, one over the other not less than 6 feet apart where they can best be seen, three shapes not less than 2 feet in diameter of which the highest and lowest shall be globular in shape and green in color and the middle one diamond in shape and white.

(a) Vessels of the Coast and Geodetic Survey shall carry the aboveprescribed marks while actually engaged in hydrographic surveying and under way, including drag work. Launches and other boats shall carry the prescribed marks when necessary.

(b) It must be distinctly understood that these special signals serve only to indicate the nature of the work upon which the vessel is engaged and in no way give the surveying vessel the right-of-way over other vessels or obviate the necessity for a strict observance of the rules for preventing collisions of vessels.

(c) By night a surveying vessel of the Coast and Geodetic Survey, under way and employed in hydrographic surveying, shall carry the regular lights prescribed by the rules of the road.

(d) A vessel of the Coast and Geodetic Survey, when at anchor in a fairway on surveying operations, shall display from the mast during the daytime two black balls in a vertical line and 6 feet apart. At night two red lights shall be displayed in the same manner. In the case of a small vessel the distance between the balls and between the lights may be reduced to 3 feet if necessary.

(e) Such vessels, when at anchor in a fairway on surveying operations, shall have at hand and show, if necessary, in order to attract attention, a flareup light in addition to the lights which are, by this section, required to be carried. (33 CFR 80.33)

A. 12. Rule relating to the use of searchlights or other blinding lights.

Flashing the rays of a searchlight or other blinding light onto the bridge or into the pilothouse of any vessel under way is prohibited. Any person who shall flash or cause to be flashed the rays of a blinding light in violation of the above may be proceeded against in accordance with the provisions of R.S. 4450, as amended, looking to the revocation or suspension of his license or certificate.

R.S. 4405, as amended; 46 U.S.C. 375. (33 CFR 80.34)



Using Tools in Ways For Which They Were Not Intended

Men will use screwdrivers for chisels, wrenches for hammers, and pliers for wrenches. Accidents may not occur at that time, but misuse of the tools prepares the way for future trouble.

An AB was disconnecting a valve using an open end wrench. The wrench broke and struck the man on the leg, causing a bruise of sufficient severity to require medical attention.

Upon examination the tool was found to have a hidden defect. It could have developed weeks earlier but it took the severe use at this time to bring it to a head. The first assistant stated that he had suggested at the start of the job that a box wrench be used instead. His instructions went unheeded. Careful inspection of tools will sometimes detect flaws.

Courtesy Pacific Maritime Association

MERCHANT MARINE PERSONNEL STATISTICS

MERCHANT MARINE OFFICER LICENSES ISSUED

QUARTER ENDING DECEMBER 31, 1964

DECK

Grade	Original	Renewal	Grade	Original	Renewa
Master:			Coastwise		
Ocean	38	395	3d mate:		
Coastwise	4	29	Ocean	21	41
Great Lakes		24	Coastwise.		1
B.S. & L	13	64	Pilots:		
Rivers	7	47	Great Lakes	2	្រ
Radio officer licenses issued	16	155	B.S. & L	53	31
Chief mate:			Rivers.	64	36
Ocean	39	76	Master: Uninspected vessels	19	22
Coastwise.	3	3	Mate: Uninspected vessels	- 9	0
Mate:			Motor boat operators	165	256
Great Lakes		1		·	
B.S. & L.	6	6	Total	509	1, 287
Rivers	2	20			
2d mate:			Grand total	1.1	796
Ocean.	48	71		-,	

ENGINEER

Grade	Original	Renewal	Grade	Original	Renewal
STEAM Chief engineer: Unlimited Ist assistant engineer: Unlimited 2d assistant engineer: Unlimited Junited 3d assistant engineer: Unlimited Unlimited Limited Limited	35 3 32 52 30 1	453 54 163 11 215 1 191 4	Limited Ist assistant engineer: Unlimited 2d assistant engineer: Unlimited 3d assistant engineer: Unlimited Chief engineer: Unlinspected vessels Assistant engineer: Unlin- spected vessels	28 3 13 2 2 19 2 16 9	88 86 10 98 3 7 5
MOTOR			Total	268	1, 430
Chief engineer: Unlimited	12	103	Grand total	I,	698

MERCHANT SEAMEN'S DOCUMENTS ISSUED

· · · · · · · · · · · · · · · · · · ·					
Type of document	Atlantic coast	Gulf coast	Pacific coast	Great Lakes and rivers	Total
Staff officer Continuous discharge	40	3	10	1	54
book		4			4
Merchant mariner's	1.00-	-	010	100	
A B any waters unline	1, 290	660	812	480	3, 247
ited	67	67	55	20	209
AB any waters, 12 months	45	45	30	39	159
AB Great Lakes, 18		10	00	02	1.51
months	1		8	16	25
AB tugs and lowboats					
AP being and counda	5	2	2	2	11
AB segging barges	3				3
Lifeboatman	74	7		3	110
QMED	110	64	78	49	301
Entry ratings	1.237	629	802	434	3, 102
Tankerman	21	67	7	45	140
Total	2, 898	1, 548	1,830	1,082	7, 358

INVESTIGATING UNITS

Coast Guard Merchant Marine Investi-gating Units and Merchant Marine Details investigated a total of 3,394 casualty cases and 2,374 complaint cases during the fourth quarter of 1964. During this period 944 li-censed and 2,301 unlicensed seamen were subject to investigation and remedial action involving 125 licenses and 609 merchant mariner's documents were completed. In the case of licensed personnel, no licenses were revoked. 7 suspended outright, 18 suspended outright plus an additional suspension on probation, 18 suspended on probation, 10 cases were closed with an admonition and 37 warnings were issued. Thirteen cases were dismissed after a hearing. Two volun-tarily surrendered in lieu of a hearing. Of the unlicensed personnel, 21 merchant ma-ning's documents were revoked, 19 suspended outright, 81 suspended outright plus an ad-ditional suspension on probation, 128 sus-neuded on probation, 28 susoutright, 81 suspended outright plus an ad-ditional suspension on probation, 128 sus-pended on probation, 28 cases were closed with an admonition and 274 warnings were issued. Thirty-four cases were dismissed after a hearing. Twenty-four voluntarily surrendered in lieu of a hearing. Nineteen licenses and 217 documents were voluntarily denosited due to tempory unfitneer for some deposited due to temporary unitness for sea duty and 11 licenses and 112 documents returned upon a finding of fit for duty.

HORSE COLLARS FOR SAFETY

To provide a quick and efficient method for recovery of persons from the water, the Coast Guard cutte Escanaba has borrowed the helicog ter rescue sling or "horse collar" an adapted it to shipboard use. A though the structure of this 255-for cutter is far different from that of th average merchant vessel, therefore r quiring individual innovation in orde to make use of this device, we beliet our readers will find the following de scription of this shipboard rescue de vice helpful.

"Horse collars" were made u aboard ship, using 21 thread lin covered with kapok padding (Inter national Orange). The length of the resulting sling was determined measuring several individuals in th crew and using an average. Escan ba's slings are approximately inches overall. The hoisting whi may be secured to the eye at one en of the sling while the other eye of the sling "runs" on the standing part an forms a self-tightening bight to l used in the case of a weakened per son or for body recovery. Normal however, the sling is utilized as a fixe length by securing both eyes to the end of the whip with snaphooks. used in this fashion, caution is n quired to prevent a weakened perso from slipping through the "collar,"

HORSE COLLAR DIAGRAM



March 196

Commandant Releases Action on **San** Francisco Area Barge Blast

On 19 March 1964, an unmanned freight barge exploded **builder's yard in Alameda, Calif., killing 2 persons and maring 19 others.** After due consideration of the findsecond states and recommendations of the Marine and of Investigation convened to investigate the mishap, **b Commandant has announced his action.** It follows **a batim.**

TREASURY DEPARTMENT UNITED STATES COAST GUARD



31 July 1964

Commandant's Action on

Therine Board of Investigation; explosion of the rail car arge *Palmer* at Alameda, Calif., on 19 March 1964, with and of life.

I. The record of the Marine Board of Investigation evened to investigate subject casualty together with the fedings of Fact, Conclusions and Recommendations, has been reviewed.

2 On 19 March 1964, the inspected, unmanned, freight rege *Palmer* of 3,768 gross and net tons, 352 feet in length, as moored to the fitting-out dock in the builder's yard. approximately 1350 PST, an explosion occurred in the 5,7 void.

3. The *Palmer* was constructed to carry railway cars on weather deck. The hull consists of seven watertight impartments, each approximately 50 feet in length, 76 her in width, and 19 feet in depth. The only openings into the void consist of one weather deck manhole at the inward port corner of the void and one weather deck inhole at the after starboard corner of the void. These penings are designed to be closed with a bolted manhole were.



AAST RIPS BARGE "PALMER" NEAR ALAMEDA COAST GUARD BASE-----Imates after a violent explosion ripped open the stern of the PALMER," just across the Oakland Estuary from Alameda Coast Guard mee. a patrol boat from Port Security at the base was on hand merching for bodies.

4. On the date of the casualty, the Palmer had completed its Coast Guard inspection for certification and the tug Columbia was standing by to tow the vessel from the builder's yard to Seattle. During the morning hours of 19 March 1964, workmen were completing the painting of the No. 7 void. At about noon, the painting was completed. The exhaust blower which had been used in the starboard manhole and all lighting and painting gear which had been inside the void were removed. Thereafter, the installation of the two manhole covers was commenced. The starboard manhole cover was put in place without difficulty. The port manhole cover did not line up with the studs and an acetylene cutting torch was obtained from the dock to elongate the holes in the cover. The two shipfitters performing the work placed the manhole cover against a deck rail about 3 feet forward of the manhole opening and one of them was seen with the cutting torch in his hand. Shortly thereafter, a low-order explosion occurred in the No. 7 void.

5. The 2 shipfitters were killed as a result of the explosion and 19 other persons were injured. The barge sustained major damage. Other vessels and shore facilities in the vicinity suffered considerable damage.

6. Prior to the explosion, a gas chemist had not checked the void to determine if it was gas free. Following the explosion, a gas analysis was made in the remaining voids and four were found to be beyond acceptable limits. A Cleveland open-cup test was made of the paint used in the No. 7 void and it flashed at 58° F.

REMARKS

1. Concurring with the Board, it is considered that this casualty was caused by an explosion of paint vapors in the No. 7 void which were ignited by a lighted acetylene cutting torch.

2. Although the Coast Guard exercises jurisdiction over inspected vessels, their crew, and the scope and methods of repair to inspected vessels, the safety practices of the employers of ship repairmen are under the cognizance of the Department of Labor. A copy of this report will be made available to that office.

> W. D. SHIELDS, VADM, U.S. Coast Guard, Acting Commandant

RESTRICTING CONDITIONS ON GAS-FREE CERTIFICATES

A Gas-Free Certificate was recently used by a shipyard to cover the rebuilding of a vessel for a period exceeding 8 months! When recertification was finally requested, the marine chemist not only found the vessel gassy but a notation on the original certificate that "There is a residue of fuel oil on the sides and bottoms of the fuel tanks. This should be wiped clean before welding or burning in these areas." This appears to be an excellent example of more luck than good management.

It is strongly urged that chemists make every effort to avoid this oversight by—

- (1) Listing specific work to be covered by the certificate, or
- (2) Recommending reinspection period on the face of the certificate.

Issuance of a certificate with qualifications that a space will be "Safe for men—Safe for fire," if certain further work is done, has been the subject of many controversies over the years. It should be pointed out, however, that a chemist who writes such a certificate without following through on the additional work is placing his marine business and possibly all of his assets in the hands of yard personnel.

From: Marine Chemists Log #7

lorch 1965

AMENDMENTS TO REGULATIONS

TITLE 46 CHANGES

EXPANSION OF WAIVER PROCEDURES ANNOUNCED FOR MSTS VESSELS OPERATING UNDER EMERGENCY CONDITIONS

By Commandant's action of 24 December 1964, certain revisions were made to regulations setting forth procedures for processing waivers with respect to vessels other than those actually supplying troop support (46 CFR 154.06).

The Assistant Secretary of Defense, Installations and Logistics, in a letter to the Secretary of the Treasury, dated May 23, 1964, requested a change in Coast Guard's procedures which would permit the faster processing of waivers with respect to vessels other than those supplying troop support which are operated by or chartered to the Military Sea Transportation Service. Originally, the Deputy Secretary of Defense in a letter to the Secretary of the Treasury, dated August 6, 1958, requested, in the interest of national defense, a waiver of the navigation and vessel inspection laws and regulations to the extent considered necessary by Commander, Military Sea Transportation Service, or his duly designated representatives, to permit vessels operated by or chartered on a time or voyage basis to the Military Sea Transportation deployed under emergency conditions.

The amendment to the waiver order, designated § 154.06, as well as 33 CFR 19.06, is promulgated to waive the navigation and vessel inspection laws and regulations issued pursuant thereto which are administered by the U.S. Coast Guard as requested by the Deputy Secretary of Defense and the Assistant Secretary of Defense, Installations and Logistics.

(See F.R. Jan. 6, 1965, for the text of this amendment to 46 CFR 154.06)

LATEST CIRCULAR

HAZARD RATING AND CLASSIFICATION LIST PUBLISHED FOR PETROLEUM, OTHER LIQUID BULK CARGOES

A classification list for petroleum products and certain other liquids, which are being transported, or have been proposed for transportation, as bulk cargoes on merchant vessels and barges, has been published in Navigation and Vessel Inspection Circular 10-64.

The new circular, in superseding Navigation and Vessel Inspection Circular No. 4–63, contains guidance material on the classification characteristics of liquids for bulk transportation by water. The classifications given in the circular will be used by Coast Guard field activities in vessel

The Double A Products Co. of Manchester, Mich., will be listed in CG-190, Equipment Lists as an acceptable manufacturer of the following valves:

Manufacturer	Туре	Identity	Maximum allowable pressure (psi)
Double A Products, Manchester, Mich.	Solenoid operated 4-way valve	QMP-01**** PQM-01**** PQJ-01****	3, 000 3, 000 3, 000

inspections for determining compliance with 46 CFR Parts 36 throug 40 and Part 98. Copies of Navigatio and Vessel Inspection Circular 10-6 may be obtained by addressing a re quest to Commandant (CHS), US Coast Guard, Washington, D.C 20226.

ARTICLES OF SHIPS' STORES AND SUPPLIES

Articles of ships' stores and supplic certificated from January 1 to Jan uary 31, 1965, inclusive, for use o board vessels in accordance with th provisions of Part 147 of the regula tions governing "Explosives or Othe Dangerous Articles on Board Vessels are as follows:

CERTIFIED

The American Lubricants Co., 122 Deeds Avenue, P.O. Box 676, Dayta 1, Ohio, Certificate No. 610, data January 5, 1965, T-A-P and Certificate No. 611, dated January 5, 1965 BISON 1800.

Ethyl Corp., 100 Park Avenue, Ne York 17, N.Y., Certificate No. 61 dated January 18, 1965, CI 2 or COM BUSTION IMPROVER 2.

AFFIDAVITS

The following affidavits were ac cepted during the period from December 15, 1964, to January 15, 1965:

Tonawanda Electric Steel Casting Corp., 30 Island Street, North Tona wanda, N.Y., CASTINGS.

Gulf Valve Co., 4107 Weslow Stree Houston, Tex., 77017, VALVES.¹

Fick Foundry Co., 1005 East Street, Tacoma, Wash., 98421, CAST INGS.

Eaton Manufacturing Div., Eato Manufacturing Co., 700 East Huro Avenue, Vassar, Mich., 48768, CASE INGS.

The Johnson Corp., 805 Woo Street, Three Rivers, Mich., 4905 FITTINGS.³

¹ASTM B-26 and ASTM B-148 materi is not acceptable for marine use. ²Flanges shall meet the pressure-temper ture requirements of ASA standard B16.2

ACCEPTABLE COVERED STEEL ARC WELDING ELECTRODES

The following are additions to the list of electrodes which are acceptable to the U.S. Coast Guard for use in welds fabrications.

Distributors and/or manufacturers	Brand	AWS class	Operating positions and electrode sizes (inches					
			532	3⁄16	762	34	Hie	
Air Reduction Sales Co., 42d St., opposite Grand Central Station, New York, 17 N.Y. Do. Metal Thermite Corp., 100 Park Ave., New York 17, N.Y. Do. Wilson Welder Metals Co., Lincoln Bldg., 42d St. and Grand Central, New York 17, N.Y. Do. Combustion Engineering, 1000 Prospect Hill Rd., Windsor, Conn.	Airco 6011CAirco Easy Arc 8018 Airco Easy Arc 9018 Murex 611C Speedex Hts 80 Speedex Hts 80 Lightning Rod 535 Lightning Rod 534 CE 7018-A1	E 6011. E 8018-C3. E 8018-G. E 8018-G. E 8018-C3. E 9018-G. E 9018-G. E 9018-G. T018-G.	1 1 1 1 1 1 1	1 1 1 1 1 1	2 1 1 2 1 1 1 1 1 1			

MERCHANT MARINE SAFETY PUBLICATIONS

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

The Federal Register may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402. Subscription rate is \$1.50 per month or \$15 per year, payable in advance. Individual copies may be purchased so long as they are available. The charge for individual copies of the Federal Register varies in proportion to the size of the issue but will be 15 cents unless otherwise noted in the table of changes below. Regulations for Dangerous Cargoes, 46 CFR 146 and 147 (Subchapter N), dated January 1, 1964 and Supplement dated July 1, 1964 are now available from the Superintendent of Documents, price basic book: \$2.50; supplement: 75 cents.

CG No.

TITLE OF PUBLICATION

- 101 Specimen Examination for Merchant Marine Deck Officers (7-1-63).
- 108 Rules and Regulations for Military Explosives and Hazardous Munitions (8-1-62).
- 115 Marine Engineering Regulations and Material Specifications (9–1–64).
- 123 Rules and Regulations for Tank Vessels (4-1-64), F.R. 5-16-64, 6-5-64.
- 129 Proceedings of the Merchant Marine Council (Monthly).
- 169 Rules of the Road—International—Inland (6–1–62), F.R. 1–18–63, 5–23–63, 5–29–63, 7–6–63, 10–2–63, 12–13–63, 4–30–64, 11–5–64, 12–18–64.
- 172 Rules of the Road—Great Lakes (6-1-62). F.R. 8-31-62, 5-11-63, 5-23-63, 5-29-63, 10-2-63, 10-15-63, 4-30-64, 11-5-64.
- 174 A Manual for the Safe Handling of Inflammable and Combustible Liquids (3-2-64).
- 175 Manual for Lifeboatmen, Able Seamen, and Qualified Members of Engine Department (9-1-60).
- 176 Load Line Regulation (7-1-63). F.R. 4-14-64, 10-27-64.
- 182 Specimen Examinations for Merchant Marine Engineer Licenses (7-1-63).
- 184 Rules of the Road—Western Rivers (6-1-62). F.R. 1-18-63, 5-23-63, 5-29-63, 9-25-63, 10-2-63, 10-15-63, 11-5-64.
- 190 Equipment Lists (4-2-62). F.R. 5-17-62, 5-25-62, 7-24-62, 8-4-62, 8-11-62, 9-11-62, 10-4-62, 10-30-62, 11-22-62, 11-24-62, 12-29-62, 1-4-63, 1-8-63, 2-7-63, 2-27-63, 3-20-63, 4-24-63, 6-11-63, 6-15-63, 6-22-63, 6-28-63, 8-10-63, 10-16-63, 11-23-63, 12-3-63, 2-5-64, 2-11-64, 3-12-64, 3-21-64, 3-27-64, 4-29-64, 5-6-64, 5-19-64, 5-26-64, 7-2-64, 7-18-64, 7-28-64, 10-21-64, 10-27-64.
- 191 Rules and Regulations for Licensing and Certificating of Merchant Marine Personnel (7–1–63). F.R. 9–18–63, 12–13–63, 6–5–64.
- 200 Marine Investigation Regulations and Suspension and Revocation Proceedings (10–1–63). F.R. 11–5–64.
- 220 Specimen Examination Questions for Licenses as Master, Mate, and Pilot of Central Western Rivers Vessels (4–1–57).
 227 Laws Governing Marine Inspection (6–1–62).
- 239 Security of Vessels and Waterfront Facilities (7-1-64).
- 249 Merchant Marine Council Public Hearing Agenda (Annually).
- 256 Rules and Regulations for Passenger Vessels (4-1-64). F.R. 6-5-64.
- 257 Rules and Regulations for Cargo and Miscellaneous Vessels (9-1-64).
- 258 Rules and Regulations for Uninspected Vessels (1-2-64), F.R. 6-5-64, 6-6-64, 9-1-64.
- 259 Electrical Engineering Regulations (7-1-64).
- 266 Rules and Regulations for Bulk Grain Cargoes (7-1-64).
- 268 Rules and Regulations for Manning of Vessels (2-1-63).
- 269 Rules and Regulations for Nautical Schools (5-1-63). F.R. 10-2-63, 6-5-64.
- 270 Rules and Regulations for Marine Engineering Installations Contracted for Prior to July 1, 1935 (11–19–52). F.R. 12–5–53, 12–28–55, 6–20–59, 3–17–60.
- 293 Miscellaneous Electrical Equipment List (6-1-64).
- 320 Rules and Regulations for Artificial Islands and Fixed Structures on the Outer Continental Shelf (10-1-59). F.R. 10-25-60, 11-3-61, 4-10-62, 4-24-63, 10-27-64.
- 323 Rules and Regulations for 5mall Passenger Vessels (Under 100 Gross Tons) (2-3-64) F.R. 6-5-64.
- 329 Fire Fighting Manual for Tank Vessels (4-1-58).

CHANGES PUBLISHED DURING JANUARY 1965

The following has been modified by Federal Register: (None)

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