PROCEEDINGS

OF THE MERCHANT MARINE COUNCIL

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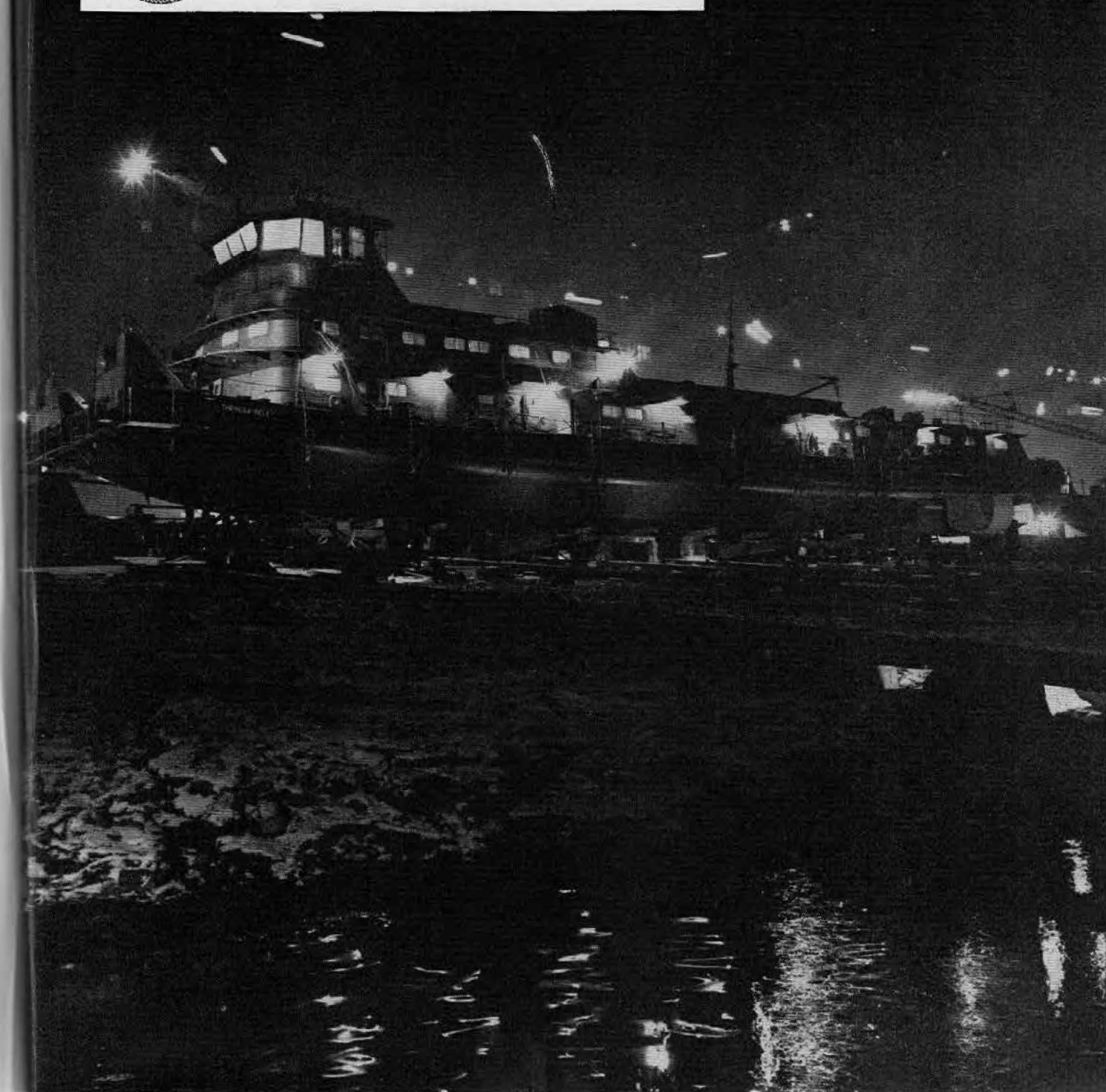

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FRONT COVER

Nearing completion, the *Theresa Seley* is the subject of this unusual night photo in the Dravo yard. Built for the Seley Power Co., Inc., New York, the 200-foot towboat is rated as one of the largest and most powerful on the inland waterways. Photo courtesy *Dravo Corp.*

BACK COVER

The South American luxury cruise ship, SS *Argentina* goes down the ways at Pascagoula, Miss. Sister ship to the SS *Brasil*, which was launched last December, the *Argentina* will be put into service later this year. Photo courtesy *Moore-McCormack Lines.*

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RADAR OBSERVER REQUIREMENTS SET TO START JANUARY 1, 1959

Effective January 1, 1959, every applicant for an original deck officer's license, raise in grade, or increase in scope of license for service on ocean, coastwise, or Great Lakes vessels of 300 gross tons or over shall be required to qualify as a radar observer.

Considered at the public hearing and annual meeting of the Merchant Marine Council on March 18, 1958, the new regulations will become part of the regular professional examination schedule starting with the new year.

The following aspects of the proper operation and utilization of marine radar equipment will make up the examination:

1. Fundamentals of radar
   a. How radar works
   b. Factors affecting the performance and accuracy of marine radar
   c. Description of the purpose and functions of the main components that comprise a typical marine radar installation.
2. Operation and use of radar
   a. The purpose and adjustment of controls
   b. The detection of malfunctioning, false and indirect echoes and other radar phenomena
   c. The effect of sea return and weather
   d. The limitations of radar resulting from design factors
   e. Precautions to be observed during internal examination of radar components
   f. Range and bearing measurement
   g. Effect of size, shape, and composition of ship targets on echo
3. Interpretation and analysis of radar information
   a. Determining the course and speed of another vessel
   b. Determining the time and distance of closest point of approach of a crossing, meeting, overtaking or overtaken vessel

(*Continued on page 107*)

EVOLUTION OF THE INLAND WATERWAYS

A TIGHT SQUEEZE: The MV *Aliqippa*, Jones & Laughlin Steel Corp., is pictured pushing a large tow through Lock No. 2, Monongahela River. Photo Courtesy Corps of Engineers.

AMONG THE MOST prized possessions of the United States is the vast network of navigable inland waterways that is without peer anywhere in the world.

From the earliest days of the country when the rivers were first used for transportation, settlement and communication to the present era of their use for mass movement of freight, the waterways of the country have had a profound effect on the history and economy of the United States.

It has been the traditional policy of the United States to improve and maintain facilities for navigation. Navigational projects were started even before the Federal Government was formed. For example, Boston erected its first town wharf in the 1630's.

The United States was only a month old when Congress authorized the Federal Treasury to assume the costs of lighthouses, beacons, buoys, and public piers that had been erected by the Colonial governments.

This is the first of a series of articles on our inland waterways prepared especially for the *Proceedings* by the American Waterways Operators, Inc., a nonprofit trade association of domestic carriers and operators on the inland waters, intracoastal canals and waterways, bays, sounds, and harbors of the United States.

Beginning in 1824, when Congress appropriated $75,000 to the Army Corps of Engineers for clearing and snagging the Mississippi and Ohio Rivers, the navigational features of our internal improvements took on new dimensions.

Today the barge and towing vessel industry operates over some 29,000 miles of navigable inland waterways.

Of this total, some 6,000 miles have improved channels with depths of 12 feet or more, but these are largely the intracoastal waterways.

Channels with depths of 9 feet but less than 12 feet also total nearly 6,000 miles, with these making up most of the major inland waterway routes.

Channel depths of 6 feet and under 9 feet are available over another 6,000 miles, largely on Atlantic Coast rivers and tributaries of the Mississippi.

Depths under 6 feet are provided in some 11,000 miles of rivers, being kept open generally by minor clearing and snagging.

Channel widths range from 100 to 300 feet.

NATURAL ROUTES

A great portion of the inland waterway system provides natural routes for barge and towboat transportation. Only minor maintenance is necessary to keep these waterways open to commercial navigation.

However, in many parts of the waterway system, channel improvements are necessary not only for safety, but also for linking and join-

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A NAVIGATIONAL improvement is seen in this aerial photograph on the Missouri River. The pilot canal, 1.7 miles long, has eliminated this long bend in the river and shortened the route approximately 2.6 miles. Note the land beginning to accrete in the old channel. Photo Courtesy Corps of Engineers.

ing river routes into an integrated system for water transportation.

The pattern of channel improvements is closely related for all rivers, regardless of geographical location. The normal procedure is first, to improve the channel by dredging and straightening; second, to remove the navigational hazards such as snags and boulders; third, to improve channels by guided flow through introduction of directing dikes; fourth, to preserve banks; and finally, to maintain adequate draft conditions through the construction of locks and dams.

The first three stages are comparatively inexpensive and offer excellent returns on the investment in widespread public benefits.

DREDGING EMPLOYED

Dredging is employed to obtain proper channel depths and sometimes to assist and hasten the changes in the river flow expected to result from the construction of dikes and revetments. Dredging is also used to open up channels across obstructive bars that form between natural deep-water pools when the stage of the river falls after high water.

The dustpan suction-type dredge works somewhat like a vacuum cleaner. It has a rectangular suction head equipped with teeth and shaped like a common household dustpan. It moves along in a straight line and loosens the material on the river bottom with the aid of water jets. The suction head is connected by a large tube to a large rotary pump operated by a turbine motor. The suction pulls in a slushy mixture of silt, sand and water and pushes it out through a tube which lays on top of a series of barges extending several hundred feet away from the river channel.

The cutterhead dredge is somewhat similar in function to the dustpan, with the difference that it can cut through harder materials and can handle much longer pipelines. The cutterhead dredge has an intake suction which is lowered to the bed of the river, but the suctionhead, instead of spreading in the dustpan manner, tapers to a semi-spherical head equipped with a number of large knives which revolve and cut into the material and loosen it so it can be drawn into the suction pipe of the dredge.

The next step for river improvement is regulation, a basic technique which directs the flow of the river according to a set plan. As employed by the Corps of Engineers, these works may include pile, stone, brush or sand spur dikes or training walls; sills, retards or bank revetments of brush lumber, stone, concrete or asphalt; channel cut-offs, and the closure of branch channels. All are intended to make the river follow a planned course by preventing it from following a normal flow.

An auxiliary means of regulation is the removal of snags and other obstructions to navigation.

Bank protection which is utilized to prevent erosion of existing banks and to retain newly formed banks also helps keep the river within fixed limits.

The improvement of a river for navigation by conversion of the natural channel into a succession of pools of nearly level surface and desired minimum depth is called canalization. This is accomplished through the use of locks and dams. This method is used when the slope of the river is too great or the flow too small to accommodate navigation.

The dams keep the water in each of the pools at a relatively uniform level. Vessels are transferred from one pool to another by hydraulic-lift locks, which lower downbound vessels to the level of the next pool, or raise upbound vessels to the next level.

Among the smallest of the lifts is the four-foot lift at the lock at Bayou Boeuf, Louisiana, on the Gulf Intracoastal Waterway. The Columbia River provides the highest lifts, with The Dalles, Oreg., lock raising boats over 87 feet and the lock at McNary Dam in Washington moving vessels up some 92 feet into the next pool.

RIVER LOCKS

River locks occupy only a part of the width of the waterway and are usually against one bank, and at each, a dam must be provided to complete the bank-to-bank structure.

Among the earliest locks on the rivers was a system built by private interests in 1840 on the Muskingum River in Ohio. These first locks were capable of passing boats 35 feet wide and 160 feet long.

The Muskingum River locks were taken over by the Corps of Engineers after the private interests sold out and were utilized for many years when the Muskingum was a tributary of the Ohio River. The river is no longer used for commercial navigation and the locks are among the many outdated facilities to be disposed of by the Corps of Engineers.

Lock sizes vary according to present and anticipated waterway traffic. The Corps of Engineers in 1957 established three standards of lock sizes to handle traffic on the various routes. The smallest of these provides locks of 56-foot width with lengths of 400 and 600 feet.

Other lock standards include an 84-foot chamber, with lengths of 600, 800 and 1,200 feet; and a 110-foot wide chamber, with lengths of 600, 800 and 1,200 feet. An exception is the 86-foot wide chamber, with lengths of 360, 500 and 675 feet, which has been established as the standard for the

Columbia River in the Pacific Northwest.

Substantial increases in traffic have required the modernization of lock structures on many waterways, such as the Ohio River where voluminous loads of freight have made it necessary to begin a modernization that will double the length of locks from 600 to 1,200 feet to accommodate the upsurge in river traffic. A similar modernization program is already under construction on the Upper Mississippi River where the 110- by 1,200-foot lock will replace smaller locks because of traffic growth.

A plan for the bottlenecked Illinois Waterway foresees the introduction of a new system of 110- by 1,200-foot locks to be placed alongside the present 110- by 600-foot locks, giving the crowded waterway double locks.

Improvements on the Warrior-Tombigbee Waterway in Alabama will see the introduction of 110- by 600-foot locks and the Green River in Kentucky will be modernized with locks of the 84- by 600-foot dimensions.

The larger tows, which may have as many as 30 barges, must be broken into sections, to navigate many of the locks. Most of the barges are passed through the lock first, with the towboat and remaining barges passing later in a system known as double locking. The larger locks tend to eliminate double locking over many of the routes and thereby save long delays.

MULTIPURPOSE DAMS

Many of the dams along the water routes are of the multipurpose type, designed for use in the generation of hydroelectric power, or used for irrigation, flood control and other interests, as well as providing a pool-stage river for navigation.

Routes for the inland water fleet are also provided by canals, which are artificially produced waterways of desired width and depth. A canal may utilize a small natural waterway. A lock structure for a canal is integral with it, but may be supplemented by a relatively short dam to discharge excess inflow and thereby hold the pool at a predetermined level.

The actual construction of navigational improvements calls for a lengthy undertaking. At the request of local interests, Congress authorizes the Corps of Engineers to make surveys for public improvements. After the investigation of engineering and economic feasibility, the Chief of Engineers makes his recommendations to Congress in coordination with the Bureau of the Budget. If favorably considered, Congress enacts legislation authorizing the project, but before planning and construction can be initiated, funds must be appropriated by Congress. All projects are carefully examined to insure that benefits exceed costs. Experience has shown that close to 50 percent of the projects examined have not been recommended.

The Corps of Engineers, through its Division and District offices, has close and important relations with the states and local people concerned with civil works improvements. The projects originate in the needs of local interests. Full consideration is given to these needs in public hearings on the projects.

Local cooperation is required on the projects when warranted. Although the cooperation varies widely, it is generally accomplished by contributing funds, furnishing necessary land, easements and rights-of-way, providing adequate terminal facilities and maintaining berthing areas and approaches to docks.

Most of the work is accomplished by contract with the construction industry, although the Corps also performs certain specialized work with its own labor and equipment.

(The next article will detail the evolution of the towboat and its impact on inland waterway operations.)

LEGAL OPINIONS

Radar; not excuse for noncompliance with Rules of the Road: The recent case of *Argentina-Antinous*, 1957 A. M. C. 2356, may be added to the ever growing amount of precedent that radar is not a substitute for moderate speed nor an excuse for noncompliance with the Rules of the Road. In the *Marine Leopard-Howard Olson*, 1957 A. M. C. 2477, it was held that failure to use radar to plot the course of another vessel "constituted poor seamanship."

Jurisdiction; foreign corporation held to be "American enterprise:" In *Chemical Carriers, Inc.* v. *L. Smit & Co.'s Internationale Sleepdienst*, 1957 A. M. C. 2462, a foreign corporation with the majority stockholders United States citizens and the principal office in New York was held to be "essentially an American enterprise" for the purpose of jurisdiction and denial of a motion to dismiss on the grounds of *forum non conveniens*.

Death on the High Seas Act, jurisdiction under: The right of action created by Death on the High Seas Act may be enforced only in admiralty. In *Noel* v. *Linea Aeropostal Venezolana*, 1957 A. M. C. 1994, plaintiff's decedent allegedly died as a result of fire on an international transport plane *over* the high seas. In reply to the contention that the Death on the High Seas Act, 46 U. S. C. 761–767, provided a remedy which necessarily had to be pursued on the civil side of the court since admiralty had no jurisdiction over airspace above the seas, the Court of Appeals, Second Circuit, declared that any cause of action created by the act could only be brought in admiralty. The court specifically declined to rule on whether the act granted a right of action in admiralty for death in the airspace.

RIVER CREWS WEAVE willow mattresses for protection against erosive action. When completed this mattress will be lowered against the river bank and kept in place with rock fill. Note all workmen except the on-looker in the left foreground are wearing life preservers. Photo Courtesy Corps of Engineers.

AMMONIUM NITRATE

By Charles B. Smith

Port Security and Law Enforcement Division Coast Guard Headquarters

WHAT IS ammonium nitrate? How is it carried aboard ship? Is it safe? What do you do in case of fire?

Since the terrible Texas City disaster in 1947 involving a vessel loaded with this substance there have been many questions raised relative to the characteristics, handling, and carriage of ammonium nitrate and ammonium nitrate formulations. This article is presented in hopes of answering some of the more important questions.

Ammonium nitrate is a valuable source of nitrogen—one of the basic materials required by plants. Its chemical formula NH_4NO_3 indicates that nitrogen is available from the NH_4 ammonium radical and from the NO_3 nitrate radical. In the high percentage types—reference is sometimes made to "Ammonium nitrate—no organic coating—33½ percent nitrogen—prilled." The "33½ percent nitrogen" refers to the actual amount of nitrogen by weight which is available from any given amount of the material. The figure is arrived at as follows:

CHEMICAL FORMULA—NH_4NO_3

Atomic weight Parts	*Total*
N—14.007×2=	28.014
H— 1.008×4=	4.032
O—16.004×3=	48.012
Atomic weight of NH_4NO_3	80.058

$$80.058 \overline{)\,28.014} \quad 34.99+\%$$

Thus, if the material was "chemically pure" it would yield 34.99+ percent nitrogen by weight for any given amount.

Ammonium nitrate is hygroscopic—that is, it has an affinity for absorbing water—the water vapor in the air is sufficient to cause caking or hardening unless the grains or prills are protected by a coating. This coating accounts for about 1 percent by weight of the commercial product.

In the commercial production of the material, impurities creep into the process such as dust, rust, water, and other contaminants, to the extent that unless the ammonium nitrate is a chemically pure material, the final product averages out about 33½ percent nitrogen. This percentage can be varied by the addition of diluents to control the nitrogen yield.

The term used in the Interstate Commerce Commission regulations—"Ammonium nitrate (no organic coating) containing 90 percent or more ammonium nitrate" refers to Ammonium nitrate that contains diluents of an inorganic nature up to 10 percent.

Ammonium nitrate "prills" are approximately spherical particles which are formed by dropping the molten material through a blast of air in a tower, much in the same way that lead shot is formed. This prilled material is in a form that is easy to work with in agriculture, and the prills when coated offer more resistance to moisture contamination.

The ammonium nitrate content of a formulation means the actual amount of NH_4NO_3 by weight which is contained in the formulation. For instance, most ammonium nitrate—carbonate mixtures are composed of 60 percent by weight ammonium nitrate and 40 percent by weight of an inorganic material such as dolomite, calcium carbonate or similar material. These mixtures yield about 20.5 percent nitrogen—

34.5%	available nitrogen in commercial ammonium nitrate without coating
×.60	ammonium nitrate (60%) in 60 to 40 mixture
20.7%	nitrogen (approximately) available in 60–40 ammonium nitrate-carbonate mixture

TEXAS CITY

The name ammonium nitrate was first brought before the general public in 1947 at Texas City, Texas, when a ship loaded with "ammonium nitrate—fertilizer grade" exploded, causing hundreds of deaths and injuries, and resulting in millions of dollars damage to the port and city. The material involved was high-strength ammonium nitrate prills coated with an organic waxlike material to prevent caking, packaged in paper bags. A fire had started in the partially loaded hold. To protect the cargo from water damage, it was decided to use the steam smothering system instead of using water to fight the fire. The hatches were closed and covered, the ventilators secured and steam turned on. One fact was not considered—ammonium nitrate is an oxidizing material, that is, it furnishes oxygen as it decomposes. The paper bags, debris and dunnage, plus the wax coating on the ammonium nitrate itself was sufficient fuel. As the temperature built up and pressure could not be relieved due to the secured hold, a runaway reaction occurred, terminating in a violent explosion.

In the fall of 1947, the Coast Guard amended its Dangerous Cargo Regulations to practically embargo the shipment of ammonium nitrate. The Secretary of the Treasury convened an Interagency Committee composed of representatives of Government and private agencies—men with wide experience in science and transportation: (1) to study all phases in transportation of ammonium nitrate; (2) make interim reports to cull out those materials not having explosive potential, and (3) make final recommendations to the Coast Guard, so that safe, realistic, and practical regulations governing the product could be put into effect.

Inasmuch as no funds were available in the early stages of the study, much of the work of the committee was devoted to search of technical

data from prior studies, and history of the several previous casualties involving the material. Independent research and testing was also carried out by several agencies participating in the committee study. From this phase came parts I and II, issued in 1947, to cover recommendations for transportation by water, and transportation by land and storage, respectively.

In 1950, $100,000 was allocated to the Coast Guard to pursue further the behavior of ammonium nitrate and ammonium nitrate formulations under various conditions. The National Research Council Academy of Sciences contracted to be the coordinating body. Arthur D. Little, Inc., the Bureau of Explosives, Association of American Railroads Laboratory, and Catholic University were chosen to perform tests relating to research, behavior, and classification of various types that might be found in commerce. During the period 1950–54 reports were issued which served as a basis for interim regulations relaxing the requirements on ammonium sulfate nitrate, ammonium nitrate carbonate mixtures and certain mixed fertilizers.

In the fall of 1953 and spring of 1954 the subcontractors submitted their final reports to the National Research Council. This Council compiled a report containing all information derived from the study and presented it to the Interagency Committee. After a thorough review and analysis the Interagency Committee submitted its final Report and Résumé (Part III of its Report) which was accepted by the Secretary of the Treasury on 7 April 1954. This final report is the basis for the present Coast Guard Regulations.

This part III of the Interagency Committee report deals extensively with the properties and behavior of various types of ammonium nitrate materials when exposed to heat, either external or that which may develop in the material itself. The major hazard is largely that incident to fire. In all cases where ships have been destroyed by explosions of ammonium nitrate, these explosions have occurred after the material was being consumed in an intense fire. In all cases the material was packaged in paper bags and additional combustible material was present either as wax coating or as cargo.

Ammonium nitrate is marketed in several types and grades. It is also a component of a variety of fertilizer mixtures. It is important to distinguish between the properties of these products as they relate to hazard possibilities. For the purpose of the Coast Guard Dangerous Cargo Regulations, five groups are recognized, listed in accordance with the relative hazard:

a. *Ammonium nitrate (organic coated)* is high percentage ammonium nitrate crystals or granules containing up to 1 percent of a waxlike coating, and 3 to 4 percent of inert claylike material. This type of material is seldom found in the fertilizer trade, but some organic coated ammonium nitrate is manufactured in moderate amounts for special uses, such as in the manufacture of certain explosives.

b. *Ammonium nitrate (no organic coating) containing 90 percent or more ammonium nitrate* may be in the form of prills, crystals, grains or flakes coated with inert, noncombustible material, such as clay, to minimize caking in storage and to facilitate its use. This material is now the major solid ammonium nitrate fertilizer product marketed in the United States and in all four forms has similar characteristics. The group also includes special grades of prills, crystals, grains or flakes marketed for technical use which contain only those impurities derived from the manufacturing process. The material of highest purity is called "chemically pure ammonium nitrate (CPAN)."

c. *Ammonium nitrate—phosphate* usually consists of approximately 60 percent by weight of ammonium nitrate and 40 percent by weight of phosphate salts, mainly dicalcium phosphate (20.5 percent approximate available nitrogen). Such mixtures are prepared by ammoniating nitric acid solutions of phosphate rock to such a degree that the product is substantially neutral. The results of tests performed on this material indicate that it demonstrates the same oxidizing characteristics and hazards as ammonium nitrate (no organic coating). Therefore, similar precautions are accorded the two groups.

d. *Ammonium nitrate—carbonate mixtures* are composed of approximately 60 percent by weight of ammonium nitrate and 40 percent by weight of fine carbonate (precipitated calcium carbonate, chalk, ground limestone, or ground dolomite) (20.5 percent approximate available nitrogen). Fire tests indicate that these mixtures are oxidizing materials, but do not possess the hazard potential of the other ammonium nitrate products described. Some of the trade names under which these products are known are: ammonium nitrate limestone, calcium ammonium nitrate, calmanite, calnitro, nitralime and nitramoncal.

e. *Ammonium nitrate mixed fertilizers (over 13 percent by weight of ammonium nitrate)* other than the phosphate or carbonate mixture described above, are mixtures of ammonium nitrate with either or both phosphate and potash compounds. The containers are marked to show the plant food content, i. e., 5–10–5, the usual lawn fertilizer would contain:

5 percent available nitrogen (N).
10 percent available phosphoric oxide (P_2O_5).
5 percent available potassium oxide (K_2O).

Tests on these fertilizer materials (over 13 percent by weight of ammonium nitrate) indicate that they may be oxidizing materials and are regulated similar to the ammonium nitrate carbonate mixtures.

Products with formulations different from the five groups described must be tested and classified before being offered for transportation.

Ammonium nitrate melts at about 170° C. (338° F.) If the melt is heated to about 210° C. (410° F.), it will begin to decompose. No runaway temperature and pressure rise will occur so long as the water, ammonia, nitric acid and nitrous oxide can escape freely. If the system is contained or confined, then the pressure and temperature will rise and an explosive decomposition may occur unless all of the ammonium nitrate decomposes before the pressure necessary for explosion is reached. Thus arises one of the basic rules in fighting a fire involving ammonium nitrate—*Provide all possible venting to release decomposition products and to reduce pressure.*

Ammonium nitrate is an oxidizing material. In other words, air containing oxygen is not necessary for a fire to burn when ammonium nitrate is involved. The vigor of the fire depends upon many factors, including

(*Continued on page 107*)

ABOUT THE AUTHOR

Mr. Smith is the Administrative Officer for Dangerous Cargo at Coast Guard Headquarters, Washington, D. C. He majored in chemistry at Illinois College, Jacksonville, Ill., and did graduate work at the University of Minnesota. From February 1942 until December 1945 he served his first tour as a Coast Guard Reserve Officer in the Pacific Theater, and in 1951 he was recalled to active duty and assigned to the Dangerous Cargo Section, Port Security and Law Enforcement Division, Coast Guard Headquarters. A new civilian billet was established in this section in June 1954 and Mr. Smith took over his present position.

MAKE SURE YOU DO THE JOB RIGHT

WHILE PROPER maintenance of lifesaving equipment cannot be overemphasized, equal importance must be placed on how the job is done. There is a right way and a wrong way to do any shipboard task. If the job is done right, it is invariably done better, faster, and safer.

This is particularly true when work is being done on gravity davit installations with lifeboats installed. Due to the weight involved—plus the complexities of brakes, winches, and fairleads—a great deal of care and supervision must be taken. Here is a case in point involving an attempt to use a 1-ton chain hoist to handle one end of 9,180 pound lifeboat carrying four seamen, which ended in tragedy:

DETAILS FOLLOW

A 70-person lifeboat carried on gravity davits dropped 15 feet to the boat deck guard rail when a one-ton chain hoist used to suspend one end of the boat during routine overhaul of the blocks carried away. As a result of this accident, one man sustained several fractures and serious head and internal injuries, which required his hospitalization for approximately three months; a second sustained a broken leg requiring hospitalization for one month; and two others were less seriously injured.

Figure 1.

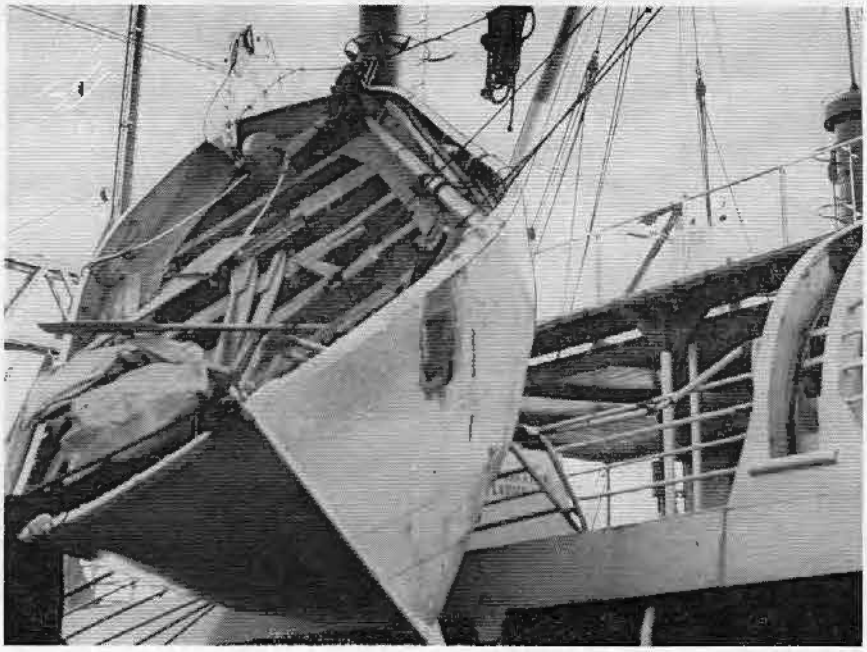


Figure 2.

Upon arrival of the vessel in port, the chief mate decided to remove and overhaul all fairlead and movable blocks on the vessel's davits. To accomplish this, a short wire strap was rigged as shown in *figure 1*. The upper hook of the chain hoist was inserted into the two eyes of the strap. The hoisting chain was led around the fore and aft bracket of the releasing gear. The boat was then raised about 3 inches and the weight taken off the movable block. A ⅝-inch safety wire was passed through the cheek of the fairlead block on the davit head and through one of the long links below the movable block.

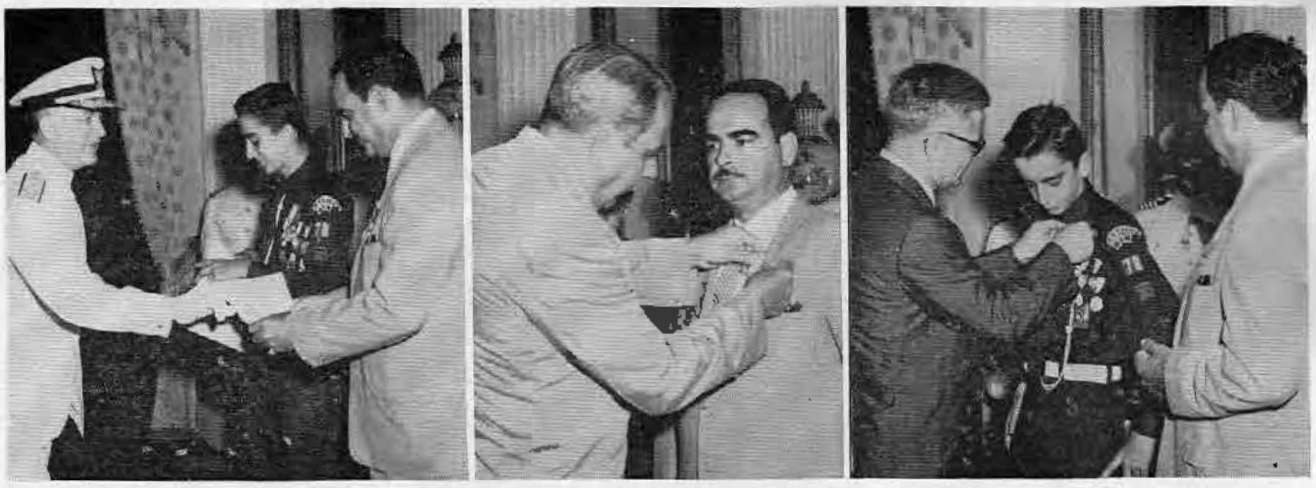
The slack was taken out of the safety wire by hand and it was secured with clamps. The boat was then lowered so that all of the weight was taken by the safety wire, permitting removal of the movable block. This procedure was followed on each of the vessel's two boats. Following overhaul, the blocks were to be reinstalled by reversing the procedure, that is, raising the boat slightly with the chain hoist in order to rig the movable block, then with the weight on the falls, removing the ⅝-inch safety wire and chain hoist.

The first boat was completed satisfactorily by this method, but upon beginning the second, it was noted that the safety wire at the forward end of the boat was fouling the block in such a way that it appeared necessary to slacken the safety wire before rigging the block on the davit head. The bos'n directed four sailors into the boat to rig the chain hoist and remove the safety wire.

When the safety wire was slack and the chain hoist was carrying the entire weight, three of the seamen began removing the wire clamps while the other tended the chain hoist. Suddenly there was a loud crack similar to a rifle report, and the forward end of the lifeboat fell to the boat deck guard rail. (See figure 2.) The sudden lurch forward sent one man tumbling over the inboard gunwale onto the boat deck; two were thrown into the bottom of the boat; and the fourth was propelled spread-eagle fashion out over the outward gunwale onto the concrete dock 35 feet below.

Simple calculations disclosed that the combined weight of the lifeboat, 9,180 pounds, and the four sailors, 771 pounds, was a tremendous overload for the one-ton chain hoist, which at the time was carrying the strain of the forward end of the lifeboat.

FATHER AND SON RECEIVE GOLD LIFESAVING MEDALS



THE HIGHEST AWARD given by the Treasury Department, the Gold Life-Saving Medal, was presented to a father and son in ceremonies at the Governor's Palace, San Juan, P. R. In the left picture, Vice Admiral A. C. Richmond, Commandant of the Coast Guard, is presenting the citations signed by Mr. Robert B. Anderson, Secretary of Treasury, to Mr. Delfin Rodriguez Favale of Guanica, P. R., and his 13-year-old Boy Scout son, Jose Delfin Rodriguez Couto. In the center picture Governor Luis Munoz Marin of Puerto Rico is pinning the Gold Medal on Mr. Rodriguez Favale. At the right, Mr. A. Gilmore Flues, Assistant Secretary of the Treasury, is making the award to young Jose. In addition to the Treasury Medals, Mr. Salvador Caro, President of the Puerto Rico Council of Boy Scouts, presented the two heroes with the Boy Scout Medal of Honor. The Citations are reproduced below.

The Secretary of the Treasury takes pleasure in presenting the GOLD LIFE-SAVING MEDAL to

DELFIN RODRIGUEZ FAVALE

for acts as set forth in the following

CITATION:

"For extreme and heroic daring on the afternoon of 30 June 1957, when he participated in rescuing four persons from drowning in the open sea off Point Meseta, Puerto Rico. These four persons had been in a party of ten persons taking a pleasure cruise when their small boat swamped, throwing all on board into the water. A short while later Mr. RODRIGUEZ FAVALE, accompanied by his thirteen-year-old son, was enroute to Cana Gorda Beach in a fifteen foot outboard motorboat when they were attracted by two boys clinging to the bottom of the swamped boat. Bringing his boat to the scene of the casualty, Mr. RODRIGUEZ FAVALE maneuvered as close as the rough seas would permit while his son pulled the two boys aboard. Sighting an elderly man close to a rocky ledge some distance away, Mr. RODRIGUEZ FAVALE ran his boat through the breakers perilously close to a dangerous reef and, while his son held onto the victim over the side of the boat, towed the man away from the rocks to a point where the boat could be stopped and the man brought aboard. Mr. RODRIGUEZ FAVALE also rescued another survivor and took aboard five bodies which were found floating in the area. Realizing that his boat was greatly overloaded and in a dangerous condition, Mr. RODRIGUEZ FAVALE did not attempt to return to Guanica Harbor which was nearby but, demonstrating seamanship of the highest order, ran before the sea for a dock at Point Jacinto. While passing off Cana Gorda Beach, Mr. RODRIGUEZ FAVALE ordered his son to jump overboard and swim to the beach where he could report the casualty to the police and receive assistance when the boat docked at Point Jacinto. Mr. RODRIGUEZ FAVALE displayed outstanding courage, sound judgment, initiative, and fortitude while endangering his life during this rescue."

The Secretary of the Treasury takes pleasure in presenting the GOLD LIFE-SAVING MEDAL to

JOSE DELFIN RODRIGUEZ COUTO

for acts as set forth in the following

CITATION:

"For extreme and heroic daring on the afternoon of 30 June 1957, when he participated in rescuing four persons from drowning in the open sea off Point Meseta, Puerto Rico. These four persons had been in a party of ten persons taking a pleasure cruise when their small boat swamped, throwing all on board into the water. JOSE was enroute to Cana Gorda Beach in a fifteen-foot outboard motorboat with his father when they were attracted by two boys clinging to the bottom of the swamped vessel. JOSE's father brought their boat to the scene of the casualty and maneuvered as close as the rough seas would permit while JOSE pulled the two boys aboard. When an elderly man was sighted close to a rocky ledge some distance away, the boat was taken through the breakers perilously close to a dangerous reef and, while JOSE held onto the victim over the side of the boat, the man was towed away from the rocks to a point where the boat could be stopped and the man brought aboard. JOSE also assisted in bringing aboard another survivor and five bodies which were found floating in the area. Although the boat was dangerously overloaded, JOSE calmly and efficiently continued to assist his father. When passing off Cana Gorda Beach, JOSE jumped overboard and swam to the beach where he reported the casualty to the police and requested that assistance be sent to his father at the dock at Point Jacinto. JOSE displayed outstanding courage, initiative and fortitude while endangering his life during this rescue."

MARITIME SIDELIGHTS

A contract to study feasibility of hydrofoils for merchant ships has been granted to Grumman Aircraft Engineering Corp. of Bethpage, N. Y., at a fixed price of $75,000, it was announced by Clarence G. Morse, Maritime Administrator, U. S. Department of Commerce.

The contract is part of the Maritime Administration's research and development program to find methods of increasing the speed and improving the seakeeping characteristics of ocean vessels to keep pace with anticipated developments in nuclear power plants.

* * *

Newest publication devoted to marine safety is the Pacific Far East Line, Inc., "Safety News." Edited by Harold White, Safety Engineer, the monthly publication is designed for distribution to all PFE ships and is dedicated to bring to light the important safety facts of the readers' daily working life. The *Proceedings* wishes them well in the important field of promoting shipboard safety.

* * *

Plans for a 13-ship fleet replacement program has been announced by the States Steamship Co. George G. Sharp will design the first 2 vessels in the $160 million schedule, which calls for the first 2 to be under construction contract by January 1, 1960, it was announced.

* * *

The German freighter, *Hein Hoyer*, which has spent as much time under the water as on top during her 20-year career, was on the west coast last month. This ship, according to a report in the *West Coast Sailors*, was 1 of 30 German ships trapped and sunk at Narvik by the Royal Navy in 1940. After 12 years' rusting in 15 fathoms, she was raised in 1953.

* * *

Marked by ceremonies aboard ship, the SS *Leilani* changed her port of registry from New York to Honolulu to become the first major passenger or cargo vessel to make the Hawaiian city her home port.

* * *

The Gulf Oil Corp. launched its fourth and final unit of a class of 32,500 ton tankers in Baltimore when the SS *Gulfknight* went down the ways. The new vessel is 661 feet in length and has a beam of 90 feet. Part of Gulf's $114 million expansion, the ship is expected to begin service this fall.

FOR THEIR HEROIC part in helping to save more than 150 people during Hurricane Audrey which swept through Cameron Parish, La., last June, Captain Royce Lingoni of the tug *Houston* and his mate George Spondike were presented the first A. M. Thompson Award by Vice President Richard M. Nixon. The award given in recognition of acts of heroism on the inland waterways will be presented annually by the Inland Waterways Common Carriers Association, it was announced. Shown left to right at the Capitol ceremony: Spondike, Bailey DeBardeleben, President of Coyle Lines, owners of the *Houston*; Vice President Nixon, and Captain Lingoni. Mr. DeBardeleben is holding the trophy presented to his company at the ceremony for the rescue operations by Coyle Lines vessels. Photo courtesy *Inland Waterways Common Carriers Association* from *International News Photos*.

* * *

Captain Raoul de Beaudean of the liner *Ile de France* relinquished his command last month upon reaching his 55th birthday, mandatory retirement age for French merchant marine officers, it was announced in the marine press.

* * *

Coastwise Line has started a cargo-carrying barge service from Seattle to Seward and Whittier, Alaska.

* * *

Bids on 4 new cargo ships for Lykes Bros. Steamship Co., Inc., will be opened in Washington, D. C., on June 19, 1958. The ships, known as MA C3–S–37a design, are similar to 5 ships which Lykes has ordered from the Ingalls Shipbuilding Corp. of Pascagoula, Miss., and will have a length of 495 feet, 69-foot beam, 11,042 deadweight tons, and service speed of 17.4 knots.

* * *

To combat the problem of block obsolescence in radar and provide for greater safety at sea, the Military Sea Transportation Service, Department of the Navy, is replacing the main radar units on 40 of their ships this year, it was announced in the *MSTS Magazine*. In addition, 28 of the ships will be equipped with new lightweight auxiliary radar. Both radars are fitted with reflection plotting devices, the magazine said.

SHIPS HONORED FOR SAFETY RECORDS

NEW JERSEY Governor Robert B. Meyner and Mrs. Meyner presented the top passenger ship "Safety Achievement Award" for 1957 to Captain William S. Profeta of the SS *Excambion* and his crew in recent ceremonies held aboard the ship in Hoboken, N. J. Sponsored jointly by the National Safety Council and the American Merchant Marine Institute, the award, consisting of a pennant for the vessel and individual certificates for the Master and each member of the crew, recognized successful completion of a mercy mission in mid-Atlantic last December. Shown left to right are: Maitland Pennington, chairman of the award committee; Captain Profeta, Mrs. Meyner, Governor Meyner, and L. H. Quackenbush, general chairman of the joint industry safety council and vice president, States Marine Lines. Photo Courtesy *American Export Lines*.

IN RECOGNITION of outstanding records in safety achievement and lifesaving during 1957, the Marine Section, National Safety Council, and the American Merchant Marine Institute jointly have made awards to these passenger, freight, and tank vessels:

In the passenger ship division the top award went to the SS *Excambion*, American Export Lines, with honorable mention going to the SS *President Cleveland* of the American President Lines.

Heading the awards in the cargo ship category was the SS *Claiborne*, Waterman Steamship Co. Honorable mention went to the SS *Limon*, United Fruit Co.; the SS *Saxon*, Isbrandtsen Steamship Co.; and the SS *Mormacmail*, Moore-McCormack Lines.

Top award in the tanker division went to the SS *Atlantic Engineer* of the Atlantic Refining Co. The committee paid special recognition to 4 vessels of The Texas Co. for their record of operating more than 1,000 days each without a lost-time accident. These vessels are the SS *New Jersey*, the SS *Colorado*, the SS *Delaware*, and the SS *Indiana*.

The "Ship Safety Achievement Award" each year is based on noteworthy acts at sea demonstrating outstanding safety practices. The award consists of a special pennant for the ship and a certificate of commendation for each member of the crew.

The *Excambion* was cited for the successful open-sea transfer of a critically ill Norwegian seaman on December 1, 1957. Under difficult sea conditions, the crew of the *Excambion* took aboard a 17-year-old boy from the *Tana* who was suffering from double pneumonia. The *President Cleveland* received its award for competence in fire fighting and averting panic.

The SS *Claiborne* rescued the crew of the Liberian tanker *Perama* on March 18, 1957 and on December 16, 1957, during a storm at sea, rescued a U. S. Navy aviator forced to ditch his plane. For her part in rescuing the crew and passengers from the burning Swedish MV *La Plata* off the coast of Brazil on July 7, 1957, the SS *Mormacmail*, received its award.

The SS *Saxon*, after a persistent 3-day search located and rescued survivors of the German training ship *Pamir* which sank last September. The last vessel in the cargo ship division to be honored was the SS *Limon* for her part in rescuing 13 from a sinking fishing vessel.

The SS *Atlantic Engineer*, under adverse weather conditions, rescued a family of six from a disabled catamaran off the coast of Florida.

HOW IS *YOUR* LIFEBOAT GEAR?

As preparation for biennial inspection, Robert H. Barker, Chief Mate of the California Shipping Company's SS *R. G. Follis* makes a careful check of his lifeboat gear.

Laying out and going over lifeboat equipment *before* the Coast Guard inspector makes his visit pays dividends for the well operated ship. In this manner outdated and missing items are placed on order, and the rest of the gear can be quickly checked off.

Captain C. H. Broach, Chief of the Merchant Vessel Inspection Division at Coast Guard Headquarters, stressed the importance of "good housekeeping" in his recent speech before the Marine Section meetings in Philadelphia. ". . . a well kept ship is a safe ship—as a safe ship, minimum attention from the Coast Guard is required—she should not be faced with last-minute delays for equipment replacements or repairs, so that her scheduling can be positive—and all of this should mean more efficiency," he said. Photo Courtesy *California Shipping Co.*

40 YEARS AGO:

The Steamboat Inspection Service has issued a circular letter addressed to all concerned inviting attention to an act of Congress approved June 10, 1918, which provides for appeals from any decision on action of any board of local inspectors.

* * *

An amendment to the general rules and regulations of the Board of Supervising Inspectors has been adopted, which reads: "Certificates of inspection for any period less than 1 year shall not be issued, but nothing herein shall be construed as preventing a revocation or suspension of certificates of inspection in case such process is authorized by law."

* * *

30 YEARS AGO:

En route from Texas City to New York, the steamer *Overbrook*, loaded with 69,000 barrels of oil was rocked by a terrific explosion in the pumproom. After the explosion, the ship burst into flames in the vicinity of the pumproom. When all means of extinguishing the fire had been adopted to no avail, the crew was ordered to the lifeboats and were later picked up by the steamer *Fred E. Weller* without a loss of life.

* * *

While the *Richfield* was undergoing repairs in San Francisco an explosion occurred in No. 2 cargo tank. Two lives were lost. The case is being investigated by the local inspectors.

* * *

20 YEARS AGO:

In preparation for another boating season the *Bulletin* listed hints to pleasure boat operators in the care and handling of gasoline and compliance with the Pilot Rules. It was pointed out that hundreds of boats are partially or totally destroyed by fire, with resulting injury or death to many persons on board through the carelessness or negligence in handling gasoline. The cooperation of all motorboat owners and operators was earnestly solicited in promoting greater safety on their boats.

* * *

Admiral H. E. Yarnell, Commander in Chief of the United States Asiatic Fleet, commended Captain T. J. Flannery of the SS *Steel Traveler* for his "personal courage and confidence in his officers and crew" for commanding the first foreign deep-water vessel to enter the port of Shanghai since the beginning of the troubled times. "It is hoped that the excellent example set by the *Steel Traveler* will do much to encourage the resumption of regular United States shipping trade in China Ports," the Admiral concluded.

* * *

On June 1, 1938, there were 215,176 numbered motorboats in the United States. Latest figures on current American shipbuilding showed 171 vessels, aggregating 369,043 gross tons, were being built or were under contract to be built.

* * *

15 YEARS AGO:

A new publication, containing both the international and inland rules for preventing collisions has been published by the Coast Guard and is now available for free distribution.

* * *

In ceremonies on Maritime Day in Boston, Paul Brown was awarded a Merchant Marine Distinguished Service Medal for heroic action while serving as master of an American-flag merchant ship. Mr. Brown is now a Coast Guard inspector stationed in New York.

GET YOUR POLIO SHOTS

All seamen under 40 years of age are urged to get their Salk polio vaccine shots as soon as possible.

United States Surgeon General Leroy E. Burney announced that the shots are available at all Public Health Service hospitals and if the incidence of polio is high this summer a large number of unvaccinated persons could be seriously affected.

Illustration Courtesy
The National Foundation
For Infantile Paralysis

Public Health records indicate that 48.5 million persons under 40 still have not been vaccinated and all persons not yet protected should make arrangements to start their shots at once. The vaccine is given in three doses. The second four weeks after the first, and the third shot seven months after the second.

Are you protected?

UNITED STATES COAST GUARD

ADDRESS REPLY TO:
COMMANDANT
U. S. COAST GUARD
HEADQUARTERS
WASHINGTON 25, D. C.

MVI
17 APR. 1958.

Commandant's Action

on

Marine Board of Investigation; sinking of the Argentine SS CIUDAD DE BUENOS AIRES with loss of life following collision with the American SS MORMACSURF on 27 August 1957 in the Rio de La Plata.

Pursuant to the provisions of Title 46 CFR Part 136, the record of the Marine Board of Investigation, convened to investigate subject casualty, together with its Findings of Fact, Opinions and Recommendations, has been reviewed.

On the night of 27 August 1957 the American SS MORMACSURF, a freighter of 7,980 gross tons, was downbound in the Rio de La Plata, en route from Rosario to Buenos Aires. The upbound Argentine SS CIUDAD DE BUENOS AIRES, a passenger vessel of 3,754 gross tons, attempted to cross the course of the freighter, was struck on her starboard side at almost a right angle and sank 23 minutes later. The number of passengers and crew aboard is unknown. The MORMACSURF rescued 78 persons, local craft numerous others, but 75 to 80 were lost.

No personnel or survivors from the CIUDAD DE BUENOS AIRES were available for interrogation by the Board and efforts to obtain copies of the record of an investigation conducted by the Argentine authorities were unsuccessful. It was therefore impossible for the Board to determine whether human error or mechanical fault caused the passenger vessel to cross the bow of the freighter; similarly no information was obtainable as to the condition and accessibility of the lifesaving equipment or other facts which might possibly have disclosed why so many lives were lost. Coast Guard Headquarters has since been informed that the Argentine newspaper La Prensa quoted survivors as stating that "many passengers and crew who lost their lives could have lived if ordinary and basic precautions had been adopted." "There was not enough salvage (lifesaving) equipment aboard * * * and such equipment as there was was not in good working condition."

The Board concluded that the MORMACSURF was not at fault in this collision, and that her rescue operations were timely and efficient.

The report by the Marine Board of Investigation is approved.

A. C. Richmond

A. C. RICHMOND,
Vice Admiral, U. S. Coast Guard,
Commandant.

nautical queries

Q. In washing out the holds of a freight vessel the strainers become plugged and it is impossible to pump out the water by means of the bilge pumps. A portable pump is rigged on the deck, 35 feet above the tank tops of the hold and hose led both down and over the side; but the pump fails to pump the water out of the hold. Under these circumstances, what would you do to pump out the water?

A. Thirty-five (35) feet above the tank tops is too great a height for the pump to pull the water by suction. Lower the pump to just above the tank top or water level where it could provide sufficient suction and it would then push the water up the hose and over the side.

Q. The after holds of many vessels are sounded from the shaft alley. Why are these sounding pipes fitted with spring loaded self-closing valves?

A. Shaft alley sounding pipes to the holds are usually fitted with spring loaded self-closing valves, so that in the event of water in the holds there would be no danger of the water entering and possibly flooding the shaft-alley through such pipes, or vice versa to prevent a flooded shaft alley filling the holds through the sounding pipes.

Q. A vessel is loading cargo in a forward hold when it is noticed that the pipe running along the bilge to the forepeak is leaking water badly. The forepeak tank is full of water. What would you do to prevent damage to the cargo?

A. The forepeak tank in all vessels is fitted with an internal valve at the collision bulkhead which can be operated from on deck. *Close it.*

Q. What are the factors which govern the directive force of a gyrocompass?

A. The factors which govern directive force of a gyrocompass are:

(a) The position of the axle; its deviation from the meridian.

(b) The latitude.

(c) The speed of the gyrorotor.

(d) The mass, or moment of inertia of the wheel.

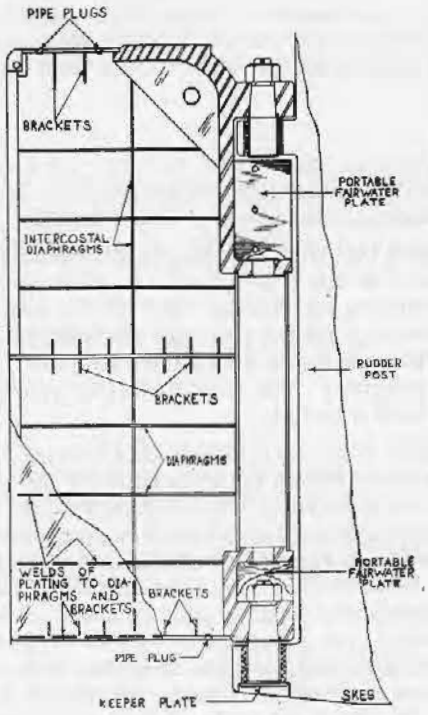
Q. If your vessel was stopped on the equator and no lubber line correction was applied to the gyro, what would be the gyrocompass error if the rotor shaft pointed 2° east of north?

A. Two degrees easterly.

SHIP CONSTRUCTION

Q. a. What is the purpose of the pipe plugs fitted on the top and bottom of the hollow plated rudder sketched?

b. Why are the pintles built with taper as shown in the sketch?



A. a. The pipe plug at the bottom is provided to drain the rudder of any water that may be in it while on drydock. The top plugs are used in conjunction with bottom plug for flushing the interior with anticorrosive compound. The plugs may be used to apply air pressure or admit water when checking for leaks or for inerting the interior with CO_2 gas if necessary for welding repairs.

b. The pintles are tapered so that they may be easily removed for repairs.

Q. (a) On a deeply loaded vessel in heavy weather taking green seas aboard, what prevents water going into the tanks through the gooseneck vents on deck?

(b) What inspection and maintenance would you give such vents?

A. (a) Some older-type vessels were provided with plugs that had to be driven in the mouth of the vent when heavy weather was anticipated. Most modern vessels are fitted with ball checks which float upward and close the mouths of the vents when water is sufficiently high on the deck.

(b) Vents should be periodically examined to see that the ball checks are operating. Kicking the vent lightly and listening to hear the ball rattle if it is free in its cage is one method. Where vents lead to fuel tanks the vent screens should be clean and intact so as to be effective for their purpose of preventing fire. The vents should be disassembled and thoroughly overhauled periodically.

Q. A vessel ballasts a double-bottom tank by filling through the sounding pipe on deck. The sounding pipe is 30 feet long to the tank top. The sailor detailed to the job permits the sounding pipe to fill to the top. What is the pressure per square foot on the tank top? If the tank top has an area of 600 square feet, what is the total force on the tank top?

(HINT: The weight of sea water is 64 pounds per cubic foot.)

A. Pressure per square foot on the tank top is 1,920 pounds. Total pressure on tank top is 1,152,000 pounds or approximately 517 tons.

Q. What is the effect of current upon the waves caused by a storm?

A. A current contrary to the waves causes a short, steep sea.

A current in the same direction as the waves causes them to be less steep.

Q. A vessel discharging cargo at anchor observes an approaching thunderstorm. A flash of lightning is followed 12 seconds later by thunder. Six minutes later another flash of lightning is followed in 8 seconds by thunder. How much time does the vessel have to rig rain tents or cover the hatches before the storm reaches her?

A. Twelve minutes after the second flash the storm will reach her.

more on NITRATE

the amount and kind of ammonium nitrate, and the amount and type of combustible material. The only way to combat a fire in which ammonium nitrate is involved is to cool the mass to a temperature below the fire point. The *second rule* in fighting a fire involving ammonium nitrate *is to flood with an abundance of water.*

A steam smothering system is not only ineffective but may add to the hazard by furnishing additional heat and pressure. The only effective method is to use a large volume of water.

One other hazard is indicated by the regulations pertaining to ammonium nitrate. Explosives should not be used to break up the caked material, nor should explosives be stowed or stored in an adjacent area. History of ammonium nitrate indicates that under certain conditions it may add to the force of high explosives (Oppau Germany—1923).

Fire prevention is very important in areas where ammonium nitrate is stored, handled, or stowed. The *No Smoking* rule must be strictly enforced. Good housekeeping practices such as cleaning up junk and debris, remains of previous cargo and dunnage help prevent fires from starting and reduce the amount of combustible material that might become involved in a fire.

The Coast Guard Regulations applying to the handling, stowage and transportation of ammonium nitrate and ammonium nitrate formulations reflect the recommendations of the Interagency Committee. These regulations are found in title 46, CFR subparts 146.22–30 and 146.22–100. A permit must be obtained from the Coast Guard before ammonium nitrate (organic coated), ammonium nitrate prills, crystals, grains or flakes, and ammonium nitrate phosphate mixtures can be loaded or unloaded from a vessel. A permit is not required for ammonium nitrate carbonate mixtures and ammonium nitrate mixed fertilizers. However, the regulations applying to each type must be complied with whether a permit is required or not.

The relative hazards of the different types are recognized in the specifications for the isolation of the facility. Ammonium nitrate (organic coated) must be handled only at facilities so remotely isolated from populous areas and high value or high hazard industrial areas, that in the event of fire or explosion, loss of lives and property may be minimized. An abundance of water must be available and the vessel must be in such state of readiness that it can be moved to open water immediately in case of fire.

Ammonium nitrate prills, crystals, grains or flakes, dynamite grade and other forms of high percentage ammonium nitrate, all without organic coating, and ammonium nitrate phosphate shall be handled at facilities removed from congested areas and those having high value or high hazard industrial facilities. The isolation afforded should compare with that of petroleum bulk facilities. Here again an abundance of water must be available for fighting fires and the vessel must be maintained in a mobile status during the loading operation.

Ammonium nitrate carbonate mixtures and the mixed fertilizers containing over 13 percent ammonium nitrate may be loaded or discharged at any facility which meets the port security requirements and which has a large supply of water for fighting fires.

The regulations also provide less stringent requirements for the materials when shipped in containers other than paper bags.

The Coast Guard Port Security Regulations require that the Coast Guard captain of the port be notified when 100 tons or more of an oxidizing material is on a facility. This requirement applies to all forms of ammonium nitrate, regardless of the packing. This notification is separate and distinct from the permit requirement for the vessel.

RULES FOR DANGEROUS CARGO IN NEW VOLUME

The Coast Guard's "Gray Book" of Dangerous Cargo Regulations has been discontinued.

CG–187, Explosives or Other Dangerous Articles on Board Vessels, is being replaced by a new volume of Title 46, Code of Federal Regulations. In the interest of economy and to avoid duplication of the same information in two Government publications, the Division of the Federal Register has agreed to publish semiannual cumulative pocket supplements of parts 146 and 147, Volume II of Title 46, Code of Federal Regulations.

This publication will contain all Dangerous Cargo Regulations which were in effect on January 1, 1958 and will be divided into parts and subparts exactly the same as CG–187. The supplements will be issued approximately 30 days subsequent to the time the semiannual amendments appear in the Federal Register, it was pointed out.

Copies of the new Volume II of Title 46, Code of Federal Regulations, containing parts 146 and 147, may be obtained as a sales publication from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Price $5.50.

more on OBSERVER

c. Detecting changes of course and/or speed of another vessel after its initial course and speed have been established

d. Factors to consider when determining change in course and/or speed of own vessel to prevent collision on the basis of radar observation of another vessel or vessels

4. Plotting (any method that is graphically correct may be used)

a. The principles and methods of plotting relative and true motion

b. Practical plotting problems

An applicant for license who fails in radar, but passes in every other subject will be considered as having failed the examination and shall be so reported; but he may at any time within 6 months following the first attempt be reexamined in radar only, and if he then passes, he will be granted a license.

A certificate of successful completion of a course of instruction of a Maritime Administration or other Government operated school, approved by the Commandant, is acceptable evidence of the holders qualification as radar observer without the examination specified above.

INCLUDE ALL INFORMATION

It has been observed over a considerable period of time that vessels reporting distress, potential distress, groundings, menaces to navigation, medicos, failures of navigational aids, etc., addressed to or requiring action by the U. S. Coast Guard, almost invariably fail to include sufficient pertinent information in the initial report.

It is requested, therefore, that vessels furnish the following information in their initial reports of such matters in order to expedite action and obviate the need for messages to obtain amplifying data:

(a) Particulars regarding the reporting vessel; Name, position, course, speed, destination, and estimated time of arrival.

(b) Particulars concerning the vessel or object reported: Name (if any), color, size, shape, and other descriptive data.

(c) Particulars concerning the case: Nature of the case, conditions and action taken, if any.

MERCHANT MARINE STATISTICS

There were 974 vessels of 1,000 gross tons and over in the active oceangoing United States merchant fleet on April 1, 1958, according to information released by the Maritime Administration, U. S. Department of Commerce. This was two less than the number active on March 1, 1958.

There were 39 Government-owned and 935 privately owned ships in active service. These figures did not include privately owned vessels temporarily inactive, or Government-owned vessels employed in loading grain for storage. They also exclude 34 vessels in the custody of the Departments of Defense, State, and Interior.

There was an increase of four active and a decrease of four inactive vessels in the privately owned fleet. One new tanker, the *Gulfprince,* went into operation, and one Liberty ship, the *Penn Trader,* was returned to United States flag from foreign registry, while two tankers, the *Bidwell* and the *Esso Brooklyn,* were sold foreign. This left the total privately owned fleet unchanged at 996 ships.

The Maritime Administration's active fleet decreased by six, while its inactive fleet increased by five. One tanker the *Culpepper,* was sold for scrap. Three tankers and a cargo ship owned by the Navy were turned over to the Administration. One Liberty ship was turned over to the Navy. This made a net decrease of one in the Government fleet, which totaled 2,125. There was a net decrease of one vessel in the total merchant fleet, active and inactive, which numbered 3,127 on April 1, 1958.

No new contracts were placed. One new private tanker, the SS *Gulfprince,* a small cargo ship for the Navy, the USNS *Mizar,* and two tanker conversions were delivered. The total of large merchant ships on order or under construction in U. S. shipyards dropped to 117.

Of the 61 privately owned inactive vessels, 16 dry cargo ships and 30 tankers were laid up for lack of employment. Most of the others were undergoing repair or conversion. Twelve of the active tankers were carrying grain.

Seafaring jobs on active United States-flag ships of 1,000 gross tons and over, excluding civilian seamen manning Military Sea Transportation Service ships were 52,941. Prospective officers in training in Federal and State nautical schools numbered 1,924.

MERCHANT MARINE PERSONNEL STATISTICS

MERCHANT MARINE OFFICER LICENSES ISSUED

QUARTER ENDING 31 MARCH 1958

DECK

Grade	Original	Renewal
Master:		
Ocean	40	533
Coastwise	2	35
Great Lakes	8	73
B. S. & L.	12	139
Rivers	9	70
Radio officer licenses issued	29	50
Chief mate:		
Ocean	36	113
Coastwise		3
Mate:		
Great Lakes		
B. S. & L.		
Rivers		
Second mate:		
Ocean	46	102
Coastwise	1	1
Third mate:		
Ocean	20	87
Coastwise		1
Pilots:		
Great Lakes	27	60
B. S. & L.	131	54
Rivers	117	50
Master: Uninspected Vessels	8	20
Mate: Uninspected Vessels	15	37
Motorboat Operators	302	621
Total	804	2,050
Grand total	2,854	

ENGINEER

Grade	Original	Renewal
STEAM		
Chief engineer:		
Unlimited	70	639
Limited	17	206
First assistant engineer:		
Unlimited	55	188
Limited	20	61
Second assistant engineer:		
Unlimited	86	266
Limited	20	21
Third assistant engineer:		
Unlimited	69	200
Limited	14	2
MOTOR		
Chief engineer:		
Unlimited	9	106
Limited	38	175
MOTOR—continued		
First assistant engineer:		
Unlimited	7	24
Limited	18	21
Second assistant engineer:		
Unlimited	9	19
Limited	4	
Third assistant engineer:		
Unlimited	9	286
Limited	9	3
Chief engineer: Uninspected vessels	8	20
Assistant engineer: Uninspected vessels	5	3
Total	465	2,210
Grand total	2,705	

WAIVER OF MANNING REQUIREMENTS

Waivers	Atlantic Coast	Gulf Coast	Pacific Coast	Great Lakes	Total
Deck officers substituted for higher ratings					
Engineer officers substituted for higher ratings					
O. S. for A. B.					
Wiper or coalpassers for QMED					
Total waivers					
Number of vessels					

INVESTIGATING UNITS

Coast Guard Merchant Marine Investigating Units and Merchant Marine Details investigated a total of 3,565 cases during the first quarter of 1958. From this number, hearings before examiners resulted involving 41 officers and 322 unlicensed men. In the case of officers, 2 licenses were revoked, 1 was suspended without probation granted, 8 were suspended with probation granted, 4 cases were dismissed after hearing, and 2 hearings were closed with admonition. Of the unlicensed personnel, 22 documents were revoked, 19 were suspended without probation, 109 were suspended with probation granted, 34 hearings were closed with admonition, and 30 cases were dismissed after hearing. Four licenses and 88 documents were voluntarily surrendered.

ORIGINAL SEAMEN'S DOCUMENTS ISSUED

Type of document	Atlantic Coast	Gulf Coast	Pacific Coast	Great Lakes and rivers	Total
Staff Officer	49	8	31	1	89
Continuous Discharge Book		7		1	8
Merchant Mariner's Documents	1,218	550	787	704	3,259
AB any waters unlimited	134	61	82	64	341
AB any waters, 12 months	44	17	34	30	125
AB Great Lakes, 18 months	6		5	37	48
AB tugs and tow-boats, any waters		10	4	2	16
AB bays and sounds	1				1
AB seagoing barges		3			3
Lifeboatman	100	27	81	16	227
QMED	121	45	70	108	344
Radio Operators	4	1	2		7
Certificate of service	1,166	532	757	668	3,123
Tankerman	23	57	6	51	140
Total	2,866	1,318	1,862	1,685	7,731

APPENDIX

AMENDMENTS TO REGULATIONS

[EDITOR'S NOTE.—The material contained herein has been condensed due to space limitations. Copies of the Federal Registers containing the material referred to may be obtained from the Superintendent of Documents, Washington 25, D. C.]

TITLE 46—SHIPPING

Chapter I—Coast Guard, Department of the Treasury

Subchapter B—Merchant Marine Officers and Seamen

[CGFR 58–15]

PART 12—CERTIFICATION OF SEAMEN

SUBPART 12.25—CERTIFICATES OF SERVICE FOR RATINGS OTHER THAN ABLE SEAMAN OR QUALIFIED MEMBER OF THE ENGINE DEPARTMENT

MEMBERS OF MERCHANT MARINE CADET CORPS

The designation of students at the United States Merchant Marine Academy has been changed from "Cadet-Midshipman" to "Cadet." The text of 46 CFR 12.25–25 is, therefore, revised to reflect this change of designation of students. Because this amendment to 46 CFR 12.25–25 is editorial in nature, it is hereby found that compliance with the Administrative Procedure Act with respect to notice of proposed rule making, public rule making procedures thereon, and effective date requirements thereof, is unnecessary.

By virtue of the authority vested in me as Commandant, United States Coast Guard, by Treasury Department Orders 120, dated July 31, 1950 (15 F. R. 6521), 167–14, dated November 26, 1954 (19 F. R. 8026), and CGFR 56–28, dated July 24, 1956 (21 F. R. 5659), to promulgate regulations in accordance with the statutes cited with the regulations below, the following amendment to § 12.25–25 is prescribed and shall become effective upon the date of publication of this document in the Federal Register:

§ 12.25–25 *Members of Merchant Marine Cadet Corps.* No ratings other than cadet (deck) or cadet (engine) as appropriate, and lifeboatman shall be shown on a merchant mariner's document issued to a member of the U. S. Merchant Marine Cadet Corps. The merchant mariner's document shall also be stamped "Valid only while cadet in the U. S. Maritime Administration training program." The merchant mariner's document thus prepared shall be surrendered upon the holder being certified in any other rating or being issued a license and the rating of cadet (deck) or cadet (engine) shall be omitted from any new merchant mariner's document issued.

(R. S. 4405, 4417a, 4488, 4551, as amended, sec. 13, 38 Stat. 1169, as amended, secs. 1, 2, 49 Stat. 1544, sec. 7, 49 Stat. 1936, sec. 1, 52 Stat. 753, 55 Stat. 579; 46 U. S. C. 375, 391a, 481, 643, 672, 367, 689, 672b, 672–1, 672–2)

Dated: April 24, 1958.

[SEAL] J. A. HIRSHFIELD,
Rear Admiral,
U. S. Coast Guard,
Acting Commandant.

[F. R. Doc. 58–3196; Filed, Apr. 29, 1958; 8:49 a. m.]

TITLE 46—SHIPPING

Chapter I—Coast Guard, Department of the Treasury

[CGFR 58–8]

MISCELLANEOUS AMENDMENTS TO INSPECTION REQUIREMENTS TO IMPLEMENT ACT OF MAY 10, 1956, AS AMENDED

Notices regarding proposed changes in the navigation and vessel inspection regulations were published in the Federal Register dated February 12, 1958 (23 F. R. 905–910), and March 1, 1958 (23 F. R. 1268–1270), as Items I through XVIII of an Agenda to be considered by the Merchant Marine Council. Pursuant to these notices a public hearing was held on March 18, 1958, by the Merchant Marine Council at Washington, D. C.

This document is the first of a series covering the regulations and actions considered at this public hearing and annual session of the Merchant Marine Council.

The Coast Guard acknowledges the assistance given to the Merchant Marine Council by those interested parties who submitted comments, views, and data in connection with the items considered at this public hearing. On the basis of comments received, some changes were made in the proposals in Item III—Passenger Vessels Carrying More Than Six Passengers and Subject to the Act of May 10, 1956 (P. L. 519, 84th Cong.). The amendments in this item, as revised, are adopted and set forth in this document.

Only minor changes were made in the proposals in Item III. With respect to requirements for licensing of merchant marine personnel, the provisions in 46 CFR 10.05–3 (a) (8), 10.05–5 (a) (9), 10.05–7 (a), 10.05–45 (a), and 10.20–5 (b) (1) (v) were revised to clarify the scope of application or descriptive language used. With respect to changes affecting passenger vessels, 46 CFR 70.05–15 (b), 71.30–1 (a), 72.40–5 (b) (1), and 77.23–1 were revised to clarify the scope of application or descriptive language used. In addition, other editorial changes necessary to have uniformity in requirements were made.

By virtue of the authority vested in me as Commandant, United States Coast Guard, by Treasury Department Orders 120, dated July 31, 1950 (15 F. R. 6521), 167–9, dated August 3, 1954 (19 F. R. 5195), 167–14, dated November 26, 1954 (19 F. R. 8026), 167–20, dated June 18, 1956 (21 F. R. 4894), and CGFR 56–28, dated July 24, 1956 (21 F. R. 5659), to promulgate regulations in accordance with the statutes cited with the regulations below, the following amendments are prescribed and shall be in effect on and after June 1, 1958:

Subchapter B—Merchant Marine Officers and Seamen

PART 10—LICENSING OF OFFICERS AND MOTORBOAT OPERATORS AND REGISTION OF STAFF OFFICERS

Subchapter H—Passenger Vessels

PART 70—GENERAL PROVISIONS

Subchapter K—Marine Investigations and Suspension and Revocation Proceedings

PART 136—MARINE INVESTIGATION REGULATIONS

Subchapter P—Manning of Vessels

PART 157—MANNING REQUIREMENTS

[Federal Register of April 19, 1958]

TITLE 46—SHIPPING

Chapter I—Coast Guard, Department of the Treasury

Subchapter T—Small Passenger Vessels (Not More Than 65 Feet in Length)

[CGFR 58-14]

MISCELLANEOUS AMENDMENTS TO SUBCHAPTER

The "Rules and Regulations for Small Passenger Vessels" in 46 CFR Parts 175 through 187 (Subchapter T) and published in the Federal Register dated October 5, 1957 (22 F. R. 7949–7980), are considered necessary to implement and thereby give force and effect to the act of May 10, 1956 (47 U. S. C. 390–390g). This law was amended by the act of August 28, 1957, to state that the effective date for the act of May 10, 1956, and its implementing rules and regulations shall be June 1, 1958. Pursuant to the notice published in the Federal Register dated October 5, 1957 (22 F. R. 7949), all suggested changes to these regulations received prior to March 1, 1958, have been reviewed. This document contains those changes in these regulations which have been found to improve them.

The effective date for the regulations in this document shall be June 1, 1958. However, for those desiring the required licenses and certificates of inspection, application on appropriate Coast Guard forms may be filed, and the necessary examinations or inspections may be conducted prior to June 1, 1958.

By virtue of the authority vested in me as Commandant, United States Coast Guard, by Treasury Department Order 167-20, dated June 18, 1956 (21 F. R. 4894), to promulgate regulations in accordance with section 3 of the act of May 10, 1956, the following amendments and regulations are prescribed:

[Federal Register of April 26, 1958]

NUMBERED AND UNDOCUMENTED VESSELS

The table below gives the cumulative total of undocumented vessels numbered under the provisions of the act of June 7, 1918, as amended (46 U. S. C. 288), in each Coast Guard district by customs ports for the quarter ended 31 March 1958. Generally speaking, undocumented vessels are those machinery-propelled vessels of less than 5 net tons engaged in trade which by reason of tonnage are exempt from documentation. They also include all other vessels propelled in whole or in part by machinery which have not been issued marine documents by the customs, owned in the United States and found on the navigable waters thereof.

Coast Guard District	Customs Port	Total
1 (Boston)	(4) Boston	17,682
	(1) Portland, Maine	9,871
	(2) St. Albans	954
	(5) Providence	5,237
	Total	**33,744**
2 (St. Louis)	(45) St. Louis	12,359
	(12) Pittsburgh	2,200
	(34) Pembina	214
	(35) Minneapolis	3,084
	(40) Indianapolis	6,404
	(42) Louisville	2,753
	(43) Memphis (part)	6,574
	(46) Omaha	463
	(47) Denver	45
	Total	**34,096**
3 (New York)	(10) New York	54,232
	(6) Bridgeport	10,654
	(11) Philadelphia	22,894
	Total	**87,780**
5 (Norfolk)	(14) Norfolk	17,556
	(13) Baltimore	24,771
	(15) Wilmington, N. C	9,061
	Total	**51,388**
7 (Miami)	(18) Tampa (part)	30,262
	(16) Charleston	1,730
	(17) Savannah	2,739
	(49) San Juan	523
	(51) St. Thomas	137
	Total	**35,391**
8 (New Orleans)	(20) New Orleans	22,609
	(18) Tampa (part)	560
	(19) Mobile	8,921
	(21) Port Arthur	4,824
	(22) Galveston	10,660
	(23) Laredo	1,867
	(24) El Paso	28
	(43) Memphis (part)	65
	Total	**49,534**
9 (Cleveland)	(41) Cleveland	11,854
	(7) Ogdensburg	2,844
	(8) Rochester	6,575
	(9) Buffalo	4,471
	(36) Duluth	2,749
	(37) Milwaukee	4,448
	(38) Detroit	24,619
	(39) Chicago	10,045
	Total	**67,605**
11 (Long Beach)	(27) Los Angeles	15,954
	(25) San Diego	2,797
	(26) Nogales	193
	Total	**18,944**
12 (San Francisco)	(28) San Francisco	**17,598**
13 (Seattle)	(30) Seattle	23,143
	(29) Portland, Oregon	8,692
	(33) Great Falls	772
	Total	**32,607**
14 (Honolulu)	(32) Honolulu	**3,943**
17 (Juneau)	(31) Juneau	**8,366**
	Grand Total	**440,996**

EQUIPMENT APPROVED BY THE COMMANDANT

ARTICLES OF SHIPS' STORES AND SUPPLIES

Articles of ships' stores and supplies certificated from 1 April to 30 April 1958, inclusive, for use on board vessels in accordance with the provisions of Part 147 (46 CFR 146–147) of the Dangerous Cargo Regulations are as follows:

CERTIFIED

Jones-Gill Chemical Co., 801 Charles Street, Gloucester City, N. J., Certificate No. 283, dated 9 April 1958, DUAL D–G–2 WASHAWAY GREASE REMOVER.

Gamlen Chemical Co., 4 Midland Avenue, East Paterson, N. J., Certificate No. 288, dated 24 April 1958, GAMLEN SEA-CLEAN.

AFFIDAVITS

The following affidavits were accepted during the period from 15 March 1958 to 15 April 1958:

The Standard Tube Co., 24400 Plymouth Road, Detroit 39, Mich., PIPE & TUBING.

Sandusky Foundry & Machine Co., Sandusky, Ohio, PIPE FITTINGS, FLANGES & PIPE.

Malleable Iron Fittings Co., 21 Thacher Street, Brandord, Conn., FITTINGS.

Jamesbury Corp., 45 New Street, Worcester, Mass., VALVES.[1]

Caldwell Foundry & Machine Co., Inc., P. O. Box 650, Birmingham[1], Ala., CASTINGS.

The Timken Roller Bearing Co., 1835 Dueber Avenue, SW., Canton 6, Ohio, PIPE & TUBING (*Ferrous.*)

FUSIBLE PLUGS

The regulations prescribed in Subpart 162.014, Subchapter Q, Specifications, require that manufacturers submit samples from each heat of fusible plugs for test prior to plugs manufactured from the heat being used on vessels subject to inspection by the Coast Guard. A list of approved heats which have been tested and found acceptable during the period from 15 March 1958 to 15 April 1958 is as follows:

The Lunkenheimer Co., Cincinnati 14, Ohio. Heat Nos. 579 and 580.

[1] Affidavit covers only Ball valves fitted with rubber or Teflon seats limited to Class II piping and a maximum temperature of 200° F.

MARINE SAFETY PUBLICATIONS AND PAMPHLETS

The following publications and pamphlets are available and may be obtained upon request from the nearest Marine Inspection Office of the United States Coast Guard, except for cost publications which may be obtained upon application to the Superintendent of Documents, Government Printing Office, Washington 25, D. C. Date of each publication is indicated following title.

CG No.	Title of Publication
101	Specimen Examinations for Merchant Marine Deck Officers. 1–50
108	Rules and Regulations for Military Explosives. 5–15–54
115	Marine Engineering Regulations and Material Specifications. 3–1–56
123	Rules and Regulations for Tank Vessels. 10–1–56
129	Proceedings of the Merchant Marine Council. Monthly
	Motorboat Safety. 1957–1958
169	Rules to Prevent Collisions of Vessels and Pilot Rules for Certain Inland Waters of the Atlantic and Pacific Coasts and of the Coast of the Gulf of Mexico. 1–2–57
172	Pilot Rules for the Great Lakes and Their Connecting and Tributary Waters. 7–1–57
174	A Manual for the Safe Handling of Inflammable and Combustible Liquids. 7–2–51
175	Manual for Lifeboatmen and Able Seamen, Qualified Members of Engine Department, and Tankerman. 6–1–55
176	Load Line Regulations. 11–1–53
182	Specimen Examinations for Merchant Marine Engineer Licenses. 5–1–57
184	Pilot Rules for the Western Rivers. 7–1–57
190	Equipment Lists. 3–1–56
191	Rules and Regulations for Licensing and Certificating of Merchant Marine Personnel. 9–15–55
200	Marine Investigation Regulations and Suspension and Revocation Proceedings. 4–13–53
220	Specimen Examination Questions for Licenses as Master, Mate, and Pilot of Central Western Rivers Vessels. 4–1–57
227	Laws Governing Marine Inspection. 7–3–50
239	Security of Vessels and Waterfront Facilities. 6–16–52
249	Merchant Marine Council Public Hearing Agenda. Annually
256	Rules and Regulations for Passenger Vessels. 3–1–57
257	Rules and Regulations for Cargo and Miscellaneous Vessels. 6–1–55
258	Rules and Regulations for Uninspected Vessels. 7–1–55
259	Electrical Engineering Regulations. 6–1–55
266	Rules and Regulations for Bulk Grain Cargo. 2–13–53
267	Rules and Regulations for Numbering Undocumented Vessels. 1–15–53
268	Rules and Regulations for Manning of Vessels. 9–3–57
269	Rules and Regulations for Nautical Schools. 11–1–53
270	Rules and Regulations for Marine Engineering Installations Contracted for Prior to July 1, 1935. 11–19–52
290	Motorboats. 7–1–57
293	Miscellaneous Electrical Equipment List. 2–1–57
320	Rules and Regulations for Artificial Islands and Fixed Structures on the Outer Continental Shelf. 1–2–57

Official changes in rules and regulations are published in the Federal Register, which is printed daily except Sunday, Monday and days following holidays. The Federal Register is a sales publication and may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D. C. It is furnished by mail to subscribers for $1.50 per month or $15.00 per year, payable in advance. Individual copies desired may be purchased as long as they are available. The charge for individual copies of the Federal Register varies in proportion to the size of the issue and will be 15 cents unless otherwise noted on the table of changes below.

Changes Published During April 1958

The following have been modified by Federal Registers:

CG–191 Federal Register, April 19, and April 30, 1958.
CG–200 Federal Register, April 19, 1958.
CG–256 Federal Register, April 19, 1958.
CG–268 Federal Register, April 19, 1958.