PROCEEDINGS OF THE
MERCHANT MARINE COUNCIL
UNITED STATES COAST GUARD

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Proceedings of the

MERCHANT MARINE COUNCIL

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Front Cover: Inland Steel Company's S. S. *Wilfred Sykes* was launched at Lorain, Ohio Yards, American Shipbuilding Co., June 28, 1949. She was given her first trial run on November 28, 1949, and formally delivered to the owners on January 12, 1950. Courtesy, Carl McDow, Freelance Photographer, Cleveland 3, Ohio.

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COUNCIL ACTIVITIES

The Merchant Marine Council held a semiannual meeting on March 28, 1950, at U. S. Coast Guard Headquarters, Washington, D. C. Public hearings were held on that day for the purpose of receiving comments on the proposed changes in the rules and regulations which had been previously announced in the February 1950 "Proceedings of the Merchant Marine Council," as well as published in the Federal Registers of February 17 and March 17, 1950.

In addition to the members of the Merchant Marine Council on duty at Coast Guard Headquarters the following officers from Coast Guard Districts sat as members of the Council: Rear Adm. Raymond T. McElligott, Commander, Thirteenth Coast Guard District, Seattle, Wash.; Capt. George E. McCabe, Commander, Seventh Coast Guard District, Miami, Fla.; Capt. Joseph A. Kerrins, Marine Inspection Officer, Fifth Coast Guard District, Norfolk, Va.; Commander George P. Kenney, Marine Inspection Officer, Ninth Coast Guard District, Cleveland, Ohio; and Mr. John P. Tibbetts, Marine Inspection Officer, Twelfth Coast Guard District, San Francisco, Calif.

The Merchant Marine Council recommended to the Commandant, U. S. Coast Guard, that the changes proposed in the rules and regulations and described in the Federal Registers of February 17 and March 17, 1950, be adopted with certain modifications in accordance with comments received. The following items were recommended:

I. To amend sections 59.6 and 60.4 of the General Rules and Regulations for Vessel Inspection, Ocean and Coastwise and add section 94.9a to the General Rules and Regulations for Vessel Inspection, Bays, Sounds, and Lakes Other Than the Great Lakes, to provide that vessels engaged exclusively in the business of furnishing pilots to vessels in need of their services may use their launches and/or yawls, when their total capacity is sufficient to accommodate all persons on board in lieu of the standard lifeboats.

II. To amend section 79.17 and redesignate this section as 78.15 in the General Rules and Regulations for Vessel Inspection on Great Lakes, which will require the posting of instructions for use of breeches buoy on vessels of 150 gross tons or over subject to inspection by the Coast Guard. The proposed regulation will require the posting of these instructions in the pilothouse, in the engine

room, and in the seamen's, firemen's, and stewards' departments. This placard shows the methods for attaching a line to a vessel and how the breeches buoy may be used in effectuating a transfer of persons from a stranded vessel.

III. To amend the Tank Vessel Regulations; General Rules and Regulations for Vessel Inspection, Ocean and Coastwise; General Rules and Regulations for Vessel Inspection, Great Lakes; General Rules and Regulations for Vessel Inspection, Bays, Sounds, and Lakes Other Than the Great Lakes; and General Rules and Regulations for Vessel Inspection, Rivers; so as to have all requirements for marking of fire and emergency equipment, etc., placed in one group so that the operator or master of a vessel can easily keep track of the various requirements and provide for their maintenance or renewal after painting operations. New sections 35.7–1 to 35.7–9, inclusive, 62.40, 78.40, 96.40, and 115.40 were recommended to be added to the Rules and Regulations applicable regarding marking of fire and emergency equipment and apparatus, fire doors, watertight doors, lifeboat embarkation stations and direction signs, stateroom notices, instructions for changing steering gears, etc. The new regulations will cover the requirements and recommendations in the Navigation and Vessel Inspection Circular No. 8–49 with slight modifications.

IV. To delete the sections 59.14, 60.11, 65.12, 76.17, 94.16, 102.7, and 113.11 from General Rules and Regulations for Vessel Inspection relative to inspection of lifeboats when built because this information is now contained in Subpart 160.035 of Subchapter Q, Specifications.

V. To delete the sections 59.43, 60.30, 76.33, 94.33 and 113.30 from General Rules and Regulations for Vessel Inspection, entitled Inspection of Life Rafts When Built, because this information is now contained in Subpart 160.018 of Subchapter Q, Specifications.

VI. To amend sections 59.44 and 60.31 of General Rules and Regulations for Vessel Inspection, Ocean and Coastwise, by adding a requirement that Type A life rafts shall be stowed on standard life raft skids.

VII. To terminate approval No. 162.002/32/0, power boiler cyclotherm, steam generator, Type MC–80, manufactured by the General Furnaces Corp., New York, N. Y.

VIII. To add new specifications to Subchapter Q for gas masks, self-contained breathing apparatus, and supplied-air respirators, flame safety lamps; first-aid kits; life raft skids; and jackknife (with can opener). All are for use on board merchant vessels. The new specifications for first-aid kits and the jackknife (with can opener) covered items of equipment which will be required by the International Convention for Safety of Life at Sea 1948, and are proposed at this time to give manufacturers sufficient time to have such items of equipment available at the time the 1948 Convention will go into effect. The specification for life raft skids for ocean and coastwise vessels is to be used in conjunction with Type A life rafts required on new vessels and as replacements on existing vessels in accordance with the amendments to sections 59.44 and 60.31 in Item VI. The specifications for the oxygen breathing apparatus, gas masks, and flame safety lamps describe these pieces of equipment in detail.

IX. To amend Marine Engineering Regulations regarding construction by new amendments to Part 52. Amend paragraph 52.05–10 (b) by changing the joint efficiency of Class I welded pressure vessels from 0.9 to 0.95 where stress raisers are eliminated in way of welded joints. Also to amend table 52.55–10 (a1) regarding maximum allowable stresses for tubing in section 52.55–10 by decreasing the maximum design temperature for certain grades of seamless carbon steel and seamless alloy steel so that the maximum wall temperatures for tubing material will be consistent with the proposed maximum design temperatures for piping and bolting material.

X. To amend Marine Engineering Regulations regarding piping systems, section 55.07–1 by changing certain temperature limitations in table 55.07–1 (b) and by changing paragraph (c) by reducing the temperature of casting and forging material of carbon steel from 850° to 800° F. To amend paragraph 55.07–5 (a) by changing the formulas (1) and (2) for determining the maximum allowable pressure and the minimum thickness of pipe for maximum design temperatures. To amend paragraph 55.07–5 (c) to permit for certain services ferrous pipe material of a wall thickness of less than standard weight pipe. To amend first sentence of subparagraph 55.07–15 (e) (2), table 55.07–15 (e12) and table 55.07–20 (c2) by decreasing the maximum design temperatures for certain materials so that they will agree with other proposed limitations recommended. To amend paragraphs (e) and (f) of section 55.10–10 regarding boiler feed and condensate piping. To amend paragraphs (e) and (f) of section 55.10–70 regarding overboard discharges and shell connections by specifying extra strong pipe in lieu of schedule 80 pipe for ash ejector discharge and pump connections led through the vessel's side. These amendments incorporate certain requirements given in the Interim Guide of the American Bureau of Shipping covering the installation of high temperature steam piping, and are in line with the recommendations made by an Advisory Panel of Metallurgists and Engineers to the American Bureau of Shipping.

XI. To amend Marine Engineering Regulations regarding welding and brazing paragraph 56.01–25 (c) to require that stress raisers in way of welded joints shall be eliminated if a fabricator elects to take advantage of the higher joint efficiency proposed to be allowed by the amendment to paragraph 52.05–10 (b). To amend subparagraph 56.01–70 (f) (4) in order to require less area of a pipe welded joint to be heat treated when local stress relief is employed. To amend paragraph 56.05–1 (n) to permit tension test specimen of test plates to be used when failure occurs in the plate and not the weld metal.

XII. To amend paragraph 136.11–10 (b) in Subchapter K, Seamen, Part 136, Marine Investigation Regulations, by increasing the witness fees from $2 to $4 per day, subsistence and allowances from $3 to $5 per day, and the mileage rate from 5 cents per mile to 7 cents per mile.

XIII. To amend subparagraph 137.05–5 (a) (4) of Subchapter K, Seamen, Part 137, Suspension and Revocation Proceedings, by adding authority for and a means of effecting the surrender and/or revocation of licenses or certificates where physically or mentally deficient persons refuse to undergo a physical examination.

XIV. To amend sections 137.09–27 and 137.09–28 in Subchapter K, Seamen, Part 137, Suspension and Revocation Proceedings, to provide a means for considering preliminary motions or objections to the charges and specifications in suspension and revocation proceedings, as well as to provide a means for the correction of errors of form and substance in charges and specifications prior to the arraignment of the person charged. It is intended to place a responsibility on Examiners to critically examine the charges and specifications to determine their legal efficacy prior to the suspension and revocation proceedings.

The proposed changes have been recommended by the Council to the Commandant and will appear in the Federal Register in the near future. The amendments when approved by the Commandant will also be published in the Appendix of a future edition of the "Proceedings."

GREAT LAKES FLEET WRITES "1949 MISSION ACCOMPLISHED"

The 1949 lake shipping season set a brisk, outstanding traffic pattern—up to a point, and that point was reached on October 1. Up to that time the ore movement was nearly 3,000,000 tons ahead of 1948's record pace, and another 80,000,000-ton ore volume seemed to be in prospect. An early start in late March, and favorable weather had combined to expedite the flow of ore.

But paralysis struck the steel mills and the mines on October 1, and the great ore fleet rode at anchor or tied up at docks in enforced idleness for several weeks.

When activity was resumed ashore, the bulk of the fleet hurried back up the lakes for more ore, but relatively small tonnage could be carried during the few remaining weeks. Many vessels continued in service halfway into December, battling ice and rough weather to bring badly needed coal cargoes to Lake Michigan ports. The season's total for ore, grain, coal, and limestone, 151,722,360 net tons, was the second lowest of the postwar years, slightly exceeding 1946, but 18.26 percent lower than 1948's all-time record.

Another comparison, however, with 1929, the peak of the prosperity period following World War I, makes 1949's total look impressive as it exceeds in fact all years prior to 1941. The 1929 movement totalled 138,574,441 net tons.

Grain was the only commodity exceeding 1948's total. Ore movement was sufficient to accommodate steel mills over the winter months, the stockpile as of December 1 being only a little below the level as of December 1, 1948. Limestone crossed the 20,000,000 mark for the third time in history. That movement was not noticeably handicapped by the work stoppages at mines and mills.

A summary of the 1949 tonnages, with comparative figures for the previous season:

TONNAGE OF CARGO MOVED

Material	1949 net tons	1948 net tons
Iron ore	77,903,021 [1](69,556,269)	98,889,655 [1](82,937,192)
Coal	40,929,555	60,563,530
Limestone	30,322,136	22,282,425
Grain	12,567,638	9,876,880
Total	151,722,360	185,612,490

[1] Gross tons.

There were 266 United States ore carriers participating in the movement of ore, and the Canadian fleet also participated in the movement, following the enabling act of Congress last spring.

With steel mills operating at close to capacity during the winter months, the stock pile of ore will have melted sufficiently to warrant another early opening in 1950, according to the present view.

An important winter activity engaging attention of lakes officers and crews is the school program conducted by Lake Carriers' Association. Capacity classes attended Navigation and Engineering Schools, preparing wheelsmen and oilers for Coast Guard examinations leading to original license, and preparing mates and assistant engineers for a raise of grade. A series of Radar Schools drew nearly 300 masters and mates, and the Ninth Coast Guard District cooperated effectively in providing radar targets. Chiefs and assistants came in for two schools in Advanced Engineering. Nearly 500 men made up the composite student roster in all 1950 schools.

Joint conferences between Canadian and United States lakes executives and navigating committees have been concluded during recent weeks, both in Cleveland and at Montebello, Quebec. Standing committees, representing both Dominion Marine Association and Lake Carriers' Association, maintain continuing studies of problems of common concern to the fleets of both countries. *Courtesy, John T. Hutchinson, President, Lake Carriers' Association.*

COAST GUARD ACTIVITIES ON THE GREAT LAKES, 1949 SEASON

The activities of the Merchant Marine Safety Division on the Great Lakes during the 1949 season included the following:

618 annual inspections,
509 drydock inspections.
384 investigations of casualties and accidents,
2,550 licenses issued originally or renewed for deck and engineering officers,
9,160 merchant mariners documents issued to certificated personnel.

Among the 384 investigations held, there was no major casualty involving a United States vessel during 1949 on the Great Lakes.

Construction of the S. S. *Wilfred Sykes*, by the American Shipbuilding Co. at their Lorain, Ohio, Yard, was completed during the year 1949. This is the largest vessel ever constructed on fresh water. Her sea trials were successfully completed on November 28, 1949. Her measurements are 678 feet over-all in length; 70 feet beam and 37 feet depth, gross tonnage 28,300. Her speed in service will be 16 miles per hour. Propulsive power is 7,000 hp. cross compound geared turbine. She is designed to carry 21,500 long tons of iron ore.

The *Sykes* was built for the Inland Steel Co. of Cleveland, Ohio. It is planned to place her in service at the time of the opening of the 1950 navigation season. Coast Guard marine inspectors followed closely the construction of this vessel.

The Aids to Navigation Division of the Ninth Coast Guard District established nine radar reflectors on buoys at the following important locations: Niagara Bar in the Niagara River; Amherstburg Outer Channel in the Detroit River; South Graham Shoal in the Straits of Mackinac; Crab Island Shoal in the St. Marys River; Round Island at the upper end of the St. Marys River; Point Iroquois Shoal at the mouth of the St. Marys River; Indiana Shoal on the approach to Indiana Harbor, Ind.; Rock Island Passage in Green Bay; and Saginaw Bay along the west shore of Lake Huron. The reports from shipmasters concerning these radar reflectors is very encouraging.

In addition, and in the interest of better markings of channels, other aids to navigation were established such as: Carleton Island Buoy, Tibbets Point radiobeacon, Ford Shoal Lighted Buoy, Strawberry Island Cut Lighted Buoy, Erie Harbor Buoy, Gull Island Shoal Lighted Buoy, Detroit Edison Lighted Buoy, South Channel Buoy, Saginaw River Buoy, Lime Island Lighted Buoy, Keewenaw Upper Entrance West Revetment Light, Madeline Island Lighted Bell Buoy, Calumet Harbor Junction Buoy, and Sheboygan Breakwater Light. The candlepower of five buoys was increased, and on Detour Reef Light, a Raymark experimental station was established.

The Coast Guard Auxiliary in the Ninth District was exceptionally busy in promoting safety during the 1949 season in the operation of smaller boats on the Great Lakes, which ac-

tivity is reflected to a certain extent in the following statistics:

907 facilities inspected,
907 courtesy inspection decals issued to members,
3,408 courtesy inspection decals issued to nonmembers.

Comparison of these activities with former years is as follows:

FACILITY INSPECTIONS

Calendar year	Average total number of facilities	Facility inspections	Percentage inspected	Ratio of members to facilities
1947	721	None	.....	10.0 to 1
1948	872	570	66.1	2.57 to 1
1949	1,161	907	78.1	2.25 to 1

COURTESY INSPECTIONS

Calendar year	Average number of members	Courtesy inspections	Inspections per member
1947	7,200	1,000	0.14
1948	2,245	2,055	.91
1949	2,610	3,408	1.31

MAILING LIST FOR "PROCEEDINGS"

It is required by the Regulations of the Joint Committee on Printing, dated July 1, 1949, No. 2, that the mailing list for the Proceedings of the Merchant Marine Council be circularized to determine whether this publication is still desired by the persons to whom it is addressed.

To all addressees on the mailing list for the Proceedings a card will be sent requesting an affirmative reply, to be returned to the Commandant (CMC), United States Coast Guard, by no later than May 31, 1950. If you desire to continue to receive the Proceedings and you do not receive a card by May 1, 1950, it is suggested that you send a card to the Commandant (CMC), United States Coast Guard Headquarters, Washington 25, D. C., setting forth the following information:

(a) Quantity desired.
(b) Quantity now received.
(c) Name and address to which the Proceedings are now sent.
(d) The new postal address if different from that to which the Proceedings are now sent.
(e) Name of firm, company, corporation, or individual requesting the Proceedings.

If no affirmative reply requesting continuance is received by May 31, 1950, the addressee's name will be removed from the mailing list.

SEARCH AND RESCUE

Calendar year	Reported cases of assistance	Number of persons assisted	Lives actually saved	Approximate value of vessels assisted
1948	78	265	9	$181,000
1949	147	372	19	654,000

Horseplay Sometimes Backfires

SAFETY IN SHIPBUILDING AND SHIP REPAIRS

Reprinted from an address given by Herman J. Nordstrom, Safety Department, Newport News Shipbuilding & Drydock Co.

The task of getting instructions down to the employee performing the work in a manner so the information will be understood and thus retained is an ever-present problem—particularly at these times when new materials presenting new safety problems are constantly being encountered. Many carefully written memoranda are overlooked because they are forgotten after filing. With certain materials we cannot afford to take the chance that instructions may be forgotten.

First, I wish to illustrate the weakness of relying entirely on memoranda for controlling work involving certain hazardous materials by recounting certain experiences with carbon tetrachloride. All toolroom and office employees of one department recently became "inebriated" from the highly toxic fumes of carbon tetrachloride. An effort was being made by the department to clean certain neoprene "oil skins" with about 15 gallons of highly volatile carbon tetrachloride (boiling point 170° F.) in an open 55-gallon drum. These effects developed even though the work was being done in a room where all the windows were open; Coppus blowers were being used to hasten the removal of fumes, and respirators were worn. The foreman said that even though he was working at his desk over 100 feet or more away from the cleaning operation he was so "giddy" throughout the day that it was necessary for him to steady himself with his hands while walking. The supervisor handling the work became violently ill and lost the following 3 days of work—others were similarly affected in varying degrees. The following day the foreman had the cleaning done outside, but the results were the same to those doing the cleaning.

The use of carbon tetrachloride was expected to conform to a memorandum which states:

All orders for such materials as this must be approved by the department heads or by their authorized assistants during their absence. In approving orders for such materials it is expected that the employees who are to use them will be properly cautioned as to the hazards of their use and that proper precautions will be taken to provide ventilation and means of escape. It is also expected that Yard police will be notified of the location and time it is to be used and that the Yard chemist will be consulted where there is any doubt as to the safety in using it.

When this memorandum was issued, carbon tetrachloride had not been used in the department referred to. Five years after the memorandum had been circulated, the department began using neoprene suits and requested the manufacturer to supply information for cleaning these suits. The manufacturer recommended carbon tetrachloride as being one of the best cleaning fluids available for this use. The conscientious foreman followed the unqualified recommendation with the resulting dangerous situation described above. This illustrates that certain technical memoranda have a very limited useful life because their information is not retained even by our most conscientious foremen. A proper interest in safety is evidenced, as in the case of the "oil skins," but the ventilation was entirely inadequate and respirators that give protection against carbon tetrachloride fumes were not available. The writer feels that with such broad control as that designating all foremen, minor deviations in procedure from the spirit of memoranda can occur in an unintentional and unseen manner, until the situation is so far from the prescribed path that the entire program is again in the "deep woods." Control of carbon tetrachloride or other hazardous materials cannot be safely delegated to the discretion of the average supervisor because of his limited interest and knowledge.

How to Make Soldering Safer

1. Always wear safety goggles or face shield.
2. Protect skin from spattering metal by keeping sleeves rolled down, collar buttoned, and wear gloves.
3. If used, solder pots must be thoroughly dry. Never put chilled or moist materials into molten metals.
4. Use approved iron rest. Never put hot iron on combustible surface.
5. Disconnect iron after it is used.
6. Apply flux or acid only to tip of soldering iron.
7. Be sure all explosive vapors have been removed before applying soldering iron to containers.
8. Don't test temperature of iron by holding it close to the face.
9. Do not snap or throw off surplus solder. Keep a dry rag at hand to wipe off excess molten metal.

LESSONS FROM CASUALTIES

PAINTING OBSERVATIONS

Painting is one of those undertakings like a woman's work—it is never done. It is a job that is not so simple as splashing and slapping a brush up and down or holding a spray gun and pointing it at the object to be painted. On the contrary, painting is a job that requires foresight and planning to avoid the difficulties which may happen to any seaman wielding a brush or holding a spray gun.

The grave results of several recent casualties illustrate the hazards of painting which are frequently overlooked. Painters often believe they know how a job should be done without reading and following special instructions for applying certain types of paint. However, painters cannot always be blamed when proper and adequate equipment has not been provided. The painter often has to do the best he can with the facilities provided, and it is very easy, after his sudden demise, to place a great portion of the blame upon him. When considering a painting job careful consideration to the hazards which may be involved should be given by the persons in charge. In a particular painting job it may be necessary to provide special precautions and special equipment to eliminate or reduce the hazards to a minimum.

In one casualty in a shipyard two men were killed, an arm was blown off a third man, and the fourth man received third-degree burns as a result of an explosion of paint fumes within a tank being prepared for carrying alcohol in bulk. These men were not seamen but employees of a subcontractor working for the shipyard. The tanks of this particular tank ship had been previously dry sand blasted and the men were spray painting the interior tank surfaces. This particular tank was ventilated by means of ordinary blowers furnished by the shipyard. The evidence does not show whether the blowers were turned off during the time the painters were eating lunch. However, shortly after luncheon several workmen entered the tank and then came back and complained of gases in the tank. Whereupon two straw bosses went into the tank while two workmen remained outside. Suddenly an explosion occurred which was heard several blocks from the shipyard. The two men in the tank managed to get out unassisted. One came up with his clothes blown or burned completely off, while the other came up with his clothes in shreds and burning. One of the men who was watching had his right arm extended into the manhole and this arm was severed below the elbow. The other man who was watching by the manhole received third-degree burns. First aid was immediately rendered by the ship's crew and the four men were subsequently hospitalized, but the two men who were in the tank later died.

An hour after the explosion occurred an analysis of the air in the tank was made by a chemist. His analysis revealed the presence of an explosive vapor in the tank. The painting on this tank vessel was being performed under the supervision of a representative of the paint manufacturer. However, at the time of the explosion the representative was not on board the vessel. The owners of the vessel had furnished the shipyard the paint together with photostat copies of special instructions for its safe application. There is some question, however, as to whether or not the special instructions were given to the painters before actual paint operations were started. The record does not show that the representative of the paint manufacturer gave the painters any instructions or information regarding the hazards involved.

When the painters complained of gases in the tank, the two straw bosses who entered the tank may not have realized the hazards involved because nothing may have been specifically mentioned to them. No attempt is being made to place the blame on any person involved, but thought should be given to the responsibilities accruing to persons who do not pass information along to the workers regarding hazardous conditions.

Very often paint may be advertised as ready to apply. The instructions on the container may make no mention of any hazards connected with its application. The normal instructions merely cover procedures necessary to mix the pigments of the paint if they have become separated. Therefore, the explosive nature or fire hazards of paint vapors may never be considered by a painter or by a ship's officer when considering painting operations in confined areas. This may happen because no mention to the painter or the ship's officer has ever been made by those who have knowledge of the hazard involved.

It is usually necessary to use a solvent or a thinner in order to provide quick drying characteristics or in order that the paint may be applied smoothly. The paint when dried may have a high flash point or a burning characteristic. However, during the drying process while the paint is being applied or shortly thereafter, the paint itself or vapors given off during the drying process may be capable of burning or may create explosive vapors ranging from 3 percent to 80 percent concentration of the volume of the inclosed space. It has been noted that the opening of a can of paint, varnish, or shellac that has been thinned with inflammable solvents and exposing it to the air in a confined area may create an explosive vapor in the immediate vicinity thereof. The explosive range of certain vapors given off by certain types of paints may be very large and the hazard, therefore, would extend over a period of time. The explosive vapor may be heavier than air and, therefore, would tend to stay near the painted surface or flow to the lowest part of the inclosed area. Since the explosive vapor would be near the deck, it might escape detection by the sense of smell alone. While the explosive hazard during painting operations may cause a severe explosion, it is very often combined with fire since the fumes being given off may support combustion and may burn with a high intensity of heat for a very short period of time (in other words—a flash fire).

During the application of paints to interior surfaces of inclosed compartments, it is necessary that adequate ventilation be provided. The amount of ventilation that will be necessary to reduce the concentration of the vapors from the paint to below the explosive limit or fire hazard limit will depend upon the type and amount of paint being applied or sprayed and the size of the compartment. Wherever possible it is desirable that blowers be used in addition to exhaust fans to insure the adequate removal of the vapors from the compartment being painted. Particular attention should also be given to the handling of the vapor and discharged air from a compartment being painted. If any of the ship's supply vents are running or if corridors are used as a means of ventilation, necessary precautions should be taken to prevent the vapors from contaminating other areas in the ship. No general rule can be recommended for the size and types of blowers and exhaust fans to be used because of the wide variations which

exist in both sizes of compartments and types of paints available. It is generally possible to find out the type of solvents or thinners used in prepared paints. When the ingredients are known standard textbooks on various chemicals usually list the explosive characteristics and flash-point characteristics of the various components.

Because of the explosive nature of certain vapors and the extreme combustibility of the partially dried coatings of certain types of paints, as well as the possibility of inadequate ventilation, any work requiring the use of welding or burning on the ship within the danger area should be completed before painting operations are started or should be postponed until after the possibility of the fumes becoming ignited is over. This danger is only present with a limited number of paints.

In another casualty involving three seamen who were assigned to hand painting the space below the deck aft of a vessel, all were partially overcome by paint fumes because proper ventilation was not provided. These seamen painted for approximately one-half an hour and then came out of the compartment for fresh air. As they were all overcome by paint fumes, it was necessary to administer first aid to them. One of them was later hospitalized and he required 3 days to recuperate. The diagnosis in his case was poisoning by paint vapors.

The third major hazard in painting is the possibility of poisoning from the ingredients contained in paints, which may be either inhaled in vapor form or be absorbed into the body by physical contact with the paint. It is, therefore, very important that seamen handling various paints should be instructed to report promptly any feeling of discomfort, dizziness, headache, eye difficulties, weakness, insomnia, or sudden upset. Many of these characteristics may be due to other causes, but they can also result from inhaling solvent vapors or poisoning from one of the paint ingredients. Neglect of such warnings as mentioned above may lead to serious illness. Prompt medical attention on the other hand generally leads to complete recovery.

It is particularly important for any one who is painting to refrain from eating, drinking, or storing food in the compartment which is being painted. He should also avoid touching his face or lips with his fingers while at work. In addition, the painter should wear suitable clothing, preferably a cap, overalls, and jumper. If painting operations cover a period of time, it is also essential that the clothing be laundered frequently. These precautions are necessary to reduce the possibility of poisoning from the ingredients contained in paints. This is especially true of paints made with a lead base.

Some people are especially susceptible to various solvent vapor illnesses and even a rather mild exposure may lead to serious consequences. For this reason early signs of discomfort should not be overlooked even when it seems unlikely that much vapor has been inhaled. Headache and dizziness are warnings to get out for fresh air. In severe cases it is suggested that the person lie flat on his back and breathe heavily to rid the system of any inhaled fumes.

The following suggestions are offered to overcome some of the painting hazards described in this article and which may be encountered on shipboard:

1. Adequate ventilation for all inclosed compartments in which painting is to be done should be provided. Exhaust ventilators as well as power blowers should be used and they should be so arranged as to insure rapid, adequate, and complete removal of all explosive, combustible, and/or toxic vapors which may be present. Every effort should be made to have the vapors discharged in such a way that they will not be sucked into any of the other ship's supply vents which may be running or in any other manner contaminate other areas.

2. Where paint vapors or fumes are known to be explosive, the electrical portable equipment used in the vicinity of painting operations in inclosed compartments should be of the explosion-proof type.

3. Where it is known that the fumes from the painting operations are explosive or combustible, any type of work within the danger area which may produce flames or sparks should be prohibited.

4. Maintain g o o d housekeeping practices and keep all unnecessary objects and materials picked up and out of the way. Particular attention should be given to rags, sweepings, waste, etc., which may be paint saturated or contaminated. These materials should be placed in covered metal containers and the lids kept closed as much as possible. Rags, waste, etc., which are made from organic matter may become highly inflammable when saturated or contaminated with paint. Very often the paint ingredients cause a chemical reaction with the rags, waste, etc., which will generate heat. When the chemical reaction builds up heat to the lowest burning point or flash point of any of the chemicals therein, a fire is started and it is often described as spontaneous combustion.

5. All packages containing paints, varnishes, lacquers, thinners, or other volatile painting materials should be kept tightly closed when not actually in use. Only the minimum amount of materials should be allowed in the compartment being painted. Every precaution should be exercised to see that the paint is not exposed to excessive heat, smoke, sparks, flames, or direct rays of the sun.

6. The exits to the compartment being painted should not be blocked.

7. An adequate supply of fire-control equipment should be provided in easily accessible places during painting operations.

8. Persons not actually engaged in the painting operations should be prohibited from the compartment unless there is a good reason for their presence in that area.

9. Anyone who is to perform painting operations should wear adequate and suitable clothing, such as cap, overalls, and jumper. If the painting operation covers a considerable period of time, the person's clothing should be laundered frequently.

10. No eating, drinking, or storing of food should be allowed in any compartment which is being painted.

11. When applying certain paints the painter should wear a respirator equipped with chemical cartridges when necessary, being careful to see that the air will not pass around the mask instead of through the filter. The filter should be changed at the slightest taste or odor to maintain the necessary absorption quality.

12. When spray guns are used in painting there is normally a large amount of flash back and in inclosed compartments the painter should be equipped with an air respirator or hose mask. When using an air respirator or hose mask, care should always be exercised to see that nothing falls on the hose or that the hose becomes squeezed together by the closing of a door or by a kink in the hose line.

TEAMWORK FOR SAFETY

Management, the line organization and the safety department cannot have divergent and separate interests which need to be adjusted and reconciled on the subject of administrative teamwork in safety, if industry, is to have safety programs worthy of the name. While it is true that the three are all parties to a common problem, the essence of solving that problem is in the closest working unity among all three.

My principal comments relate to what seem to me to be the responsibilities of management in a safety effort, but before stating them I should like in passing to touch upon essential contributions to a joint re-

sult which can be provided only by the line organization and the head of the safety department.

Let us assume that in any given situation a suitable set-up for a safety department has been created, that its duties have been rightly defined, and that everybody understands its place in the picture and its correct relationship with other working parts of the organization. Let us assume further that the head of the safety department has technical competence for his job. To my mind, those assumptions leave out the one more important ingredient. It is the intangible of the temperament of the man who is doing the safety job, his attitude toward his job, the degree to which he can convince others of his desire to cooperate with them, to be sympathetic with the practical problems they must meet, and to leave in their minds no doubt of his sincerity, no skepticism that he is merely going through the motions or putting on an act. To me, the fruits of those qualities of temperament are the most decisive and resultful contributions of the man in the safety job.

With reference to the line organization, let us assume that its operating head is safety-minded, that he has effective control over the working parts of his organization, that he has competent associates in key jobs, and that he is willing to meet halfway, in the practical application of safety ideas and suggestions, the type of head of the safety department just described.

Those assumptions, too, it seems to me—important as they are—leave out the main ingredient. It also is a matter of temperament, which takes form in the emphasis on safety which the operating executive conveys to all his immediate associates and the men under him in the whole range of his words and actions in the manner of earnest attentiveness with which he receives, discusses, and applies safety ideas originated by the head of that department, in the serious import which he attaches to reports of safety hazards to be corrected and accidents which have occurred, and, finally, in the firm and almost judicial consistency with which he insists that fair disciplinary measures for probable violations of regulations in chargeable cases be given full effect.

The manner in which the operating head discharges these varied responsibilities can do more than anything else within his power, as I see it, to indoctrinate the whole organization in safety practices and keep it keyed up to safety consciousness.

The comments on management follow the same theme very closely. Merely setting up a safety department, issuing appropriate instructions, making reasonable appropriations available and doing all the other specific things usually associated with alert management in the field are not enough. Again, the priceless ingredient is intangible.

The management, by every word and act, must leave no doubt that it is in dead earnest about the vital importance of safe operation and about its willingness to take the necessary steps to seek that result.

Even after doing all the standard, visible things reasonably expected of it, management has a wealth of opportunities to cut the heart out of any safety program by trifling inadvertences.

Let the president be scheduled to appear at a safety meeting and then be sidetracked by some other engagement, however important, and what is the result? It can't fail to be a letdown. Let the president utter all the known platitudes at a safety meeting, then have himself or his wife pinched for speeding the next day, and what kind of body blow has he thus dealt to the result he is trying to procure? Let the president talk all he wants to about safety, and then find a dozen reasons why he cannot squeeze out the money to carry into effect an important suggestion earnestly made by his subordinates, and what has it all amounted to? *By Morris Edwards, President, American Transit Association and the Cincinnati Street Railway Co.*

HOW TO GUARD AGAINST CRANKCASE EXPLOSIONS

Reprinted from Diesel Progress, August 1949, page 35, by permission of the author, Mr. R. L. Boyer.

For the past many years, discussions regarding crankcase explosions have been avoided by most engine builders. This is undoubtedly due to the fact that until recently little was actually known as to how such explosions could be eliminated. Because of the lack of a practical solution to the problem, crankcase explosions have been taken simply "as a matter of course."

It would be a bold exaggeration to state at this time that crankcase explosions can now be entirely eliminated. Provisions, however, are being made to assure adequate protection for both equipment and personnel against serious damage or injury should such an accident occur. Intensive research on the subject of crankcase explosions has produced several interesting and highly important findings. It occurs to us that it is unfair not publicly to reveal these findings to the industry. By making this information readily available, it is our hope to suggest to operators of all makes and types of engines how they in turn may guard against crankcase explosions.

Perhaps the greatest difficulty in getting precautionary measures adopted by engine operators is the very fact that so few explosions have occurred. An operator who owns anywhere from one to over a hundred engines and who has operated his equipment for 20 years or more without the slightest sign of a crankcase explosion, is not likely to get excited about precautionary measures. The fact remains, however, that he is just as likely as anyone else to have such an accident.

Engine builders themselves have been reluctant to talk about this subject for several obvious reasons. Perhaps the most important cause of this reluctance is the fear of causing undue concern about something that almost never happens. This, of course, is a totally unsound attitude. Operators everywhere should certainly be made aware of any possibility of an accident, no matter how remote it may be, and be shown how to prevent it.

Another reason why engine manufacturers have hesitated even to talk about this subject is that there is always some one engine builder who insists he has never had a crankcase explosion and therefore his engines are not subject to such a hazard. His attitude attempts to place the manufacturer who does talk about it in the position of having a hazardous design. This attitude is extremely shortsighted since no engine is immune to the possibility of explosion. Then, of course, adequate protection when applied to an engine crankcase adds somewhat to the initial cost of the engine. This added cost naturally places a price handicap against the conscientious builder since there is always a competitor who refrains from supplying adequate protection for the sole purpose of keeping his bid to a minimum with the hope of securing the business on a low cost basis.

The possibility for crankcase explosion is not limited to the Diesel engine. It can occur on a gas, gasoline, or even a steam engine. As a matter of fact, it is equally possible to have just such an accident in any gear case or other type of machinery that is reasonably well enclosed and has lubricating oil within it.

The primary cause of a crankcase explosion is generally the overheating of a bearing, bushing, piston or other part which has reached a high tem-

perature due to some form of seizure. If the lubricating oil vapor becomes mixed with air in a combustible ratio within the vicinity of such a mechanical failure, then a fire or explosion will likely occur. Many operators can immediately call to mind the occurrence of hot spots without having experienced an explosion. The reason for this is a simple and very fortunate one. The fact is an oil vapor and air mixture in a totally enclosed housing is normally too rich to ignite or propagate a flame. Many operators can remember one or more instances when black smoke billowed from an engine breather. This indicated the presence of a mild combustion taking place in the immediate vicinity of the hot spot. However, the flame could not progress throughout the crankcase because the oil-air mixture was too rich. From these facts it is easy to understand why the chances of getting both a hot spot and an explosive mixture at the same time are very remote. This point alone probably accounts for the fact that crankcase explosions are so extremely rare.

In view of the above condition, the first precaution against explosion becomes apparent. Since a crankcase mixture is normally too rich to propagate a flame, *it is important that no air be supplied to the crankcase.* The practice of ventilating the crankcase by a forced draft or otherwise encouraging air to filter in and around the crankshaft or other open spots, should be avoided. An engine crankcase must, of course, breathe to the atmosphere since there is always a certain amount of gases that blow by the piston. The best known practice is to have a crankcase breather through which the accumulated gases can escape, preferably by natural draft.

The second precaution, even more important than the first, is *to wait at least 10 minutes after a shut-down before opening any crankcase cover.* A careful study of crankcase explosions shows that in most instances where the operator was injured or even killed, he was in the process of removing a crankcase cover. The reason for this is obvious. Since a crankcase mixture is normally too rich to burn, there probably was no explosion, perhaps no more than a small fire in the crankcase before the cover was removed. The operator, however, being aware of some mechanical disarrangement, would be inclined to get the crankcase opened as soon as possible after shutting down the engine. As the crankcase cover was being removed, a large amount of air suddenly admitted into the crankcase sufficiently diluted the mixture to a point where it became explosive. Since the operator was in the act of removing the cover, he was in the direct path of the violence resulting from the ensuing explosion.

The most important knowledge for any operator to possess is that if at any time he notices any internal-mechanical trouble which may cause him to shut down his engine, under no condition whatsoever should the crankcase cover be removed for at least 10 minutes. Although a localized hot spot generally cools off very quickly (perhaps one minute is a safe estimate), we believe in the interest of safety the best rule to follow is to wait for a period of 10 minutes or more.

Since it is the inrush of air following a minor explosion that produces a hazardous condition, the use of blow-out doors decidedly fails as an adequate guard against explosion damage. Most engine builders at one time or another have used gasket or blow-out doors as a protective means. In the event of an explosion, the gasket would rupture, relieving the force of the explosion. Unfortunately the minor explosion within the crankcase would easily blow out the gasket arrangement which, in turn, would permit an inrush of air and set the stage for a major explosion.

It is now possible, however, to provide explosion-relief doors that adequately protect the crankcase from minor explosions and do not permit the disastrous inrush of air. Several designs of explosion-relief doors have already been perfected and are presently available to engine users. Here at Cooper-Bessemer, we believe these explosion-relief doors should be made of extremely light weight strip valves, so that they may erect instantaneously without the effect of heavy inertia in the valve. Since this type of valve is never completely oil tight, the usual gasket blow-out is provided on the outside of the strip valves. In the event of a crankcase explosion, the gasket arrangement blows out and has to be replaced. However, the strip valves in the meantime react instantly to prevent an inrush of air, thus eliminating the principal cause of the major explosion. By properly sizing these valves with respect to the crankcase volume, the maximum pressure reached in the most violent explosion can be kept well under 15 pounds per square inch. This pressure, of course, will not normally cause any damage.

Once again there probably isn't one chance in a thousand that there will be a single accident in the thousands of engines operating today. However, we believe it wise policy on the part of every operator to exercise every precaution by making adequate provisions for the one occurrence that might happen.

APPENDIX

Amendments to Regulations

TITLE 46—SHIPPING

Chapter I—Coast Guard, Department of the Treasury

Subchapter Q—Specifications

[CGFR 50-9]

PART 162—ENGINEERING EQUIPMENT

FLAME ARRESTERS, PRESSURE-VACUUM RELIEF VALVES, AND SPILL VALVES FOR TANK VESSELS

A notice regarding proposed specications for flame arresters, pressure-vacuum relief valves, and spill valves for tank vessels was published in the FEDERAL REGISTER dated April 27, 1949, 14 F. R. 2066, and a public hearing was held by the Merchant Marine Council on May 26, 1949, at Washington, D. C.

The purpose of new specifications for flame arresters, pressure-vacuum relief valves, and spill valves for tank vessels is to establish and publish the minimum requirements for these items of equipment which are required to be of a type approved by the Commandant of the Coast Guard before installations are permitted on tank vessels. The new specification, designated Subpart 162.016, Flame Arresters for Tank Vessels, covers the type intended for use in venting systems; materials, construction, and workmanship required in manufacture; inspection and testing at plant of manufacturer; marking required of manufacturer; and procedure for approval. The new specification, designated Subpart 162.017, Pressure-Vacuum Relief Valves and Spill Valves for Tank Vessels, covers the design and construction of pressure-vacuum relief valves and spill valves intended for use in venting systems; the types required; materials, construction, and workmanship required in manufacture; inspections and testing at plant of manufacturer; marking required of manufacturer; and procedure for approval.

By virtue of the authority vested in me as Commandant, United States Coast Guard, by R. S. 4405, as amended, and section 101 of Reorganization Plan No. 3 of 1946, 46 U. S. C. 1, 375, as well as the statutes cited with the regulations below, the following amendments to the regulations are prescribed, which shall become effective ninety (90) days after date of publication of this document in the FEDERAL REGISTER:

SUBPART 162.016—FLAME ARRESTERS FOR TANK VESSELS

Sec.
162.016–1 Applicable specifications.
162.016–2 Type.
162.016–3 Materials, construction, and workmanship.
162.016–4 Inspection and testing.
162.016–5 Marking.
162.016–6 Procedure for approval.

SUBPART 162.017—PRESSURE-VACUUM RELIEF VALVES AND SPILL VALVES FOR TANK VESSELS

162.017–1 Applicable specifications.
162.017–2 Type.
162.017–3 Materials, construction, and workmanship.
162.017–4 Inspections and testing.
162.017–5 Marking.
162.017–6 Procedure for approval.

AUTHORITY: §§ 162.016–1 to 162.017–6 issued under R. S. 4405, 4417a, and sec. 5 (e), 55 Stat. 244, as amended; 46 U. S. C. 1, 375, 391a, and 50 U. S. C. 1275.

SUBPART 162.016—FLAME ARRESTERS FOR TANK VESSELS

§ 162.016–1 *Applicable specifications.* (a) There are no other specifications applicable to this subpart.

§ 162.016–2 *Type.* (a) This specification covers the design and construction of flame arresters of the type intended for use in venting systems on tank vessels transporting inflammable or combustible liquids.

(b) The term "flame arrester" means any device or assembly of a cellular, tubular, or baffle arrangement or such other type as may be approved by the Commandant which is suitable for arresting the propagation of flame into enclosed spaces containing explosive vapors.

§ 162.016–3 *Materials, construction, and workmanship.* (a) Flame arrester housing and grid shall be of a suitable corrosion resistant material as may be approved by the Commandant.

(b) Nonmetallic materials shall not be permitted in the construction of the flame arrester, except where gaskets are employed as required by paragraph (c) of this section.

(c) Flame arrester housing shall be gastight to prevent the escape of vapors. When installed in venting systems subject to pressures above atmospheric, flame arresters shall be fitted with noncombustible gaskets resistant to the product to be carried.

(d) The flame arrester grid assembly shall be fitted in the arrester housing in a manner that will insure tightness of metal-to-metal surface contacts, so that flame propagation will not occur through the joints between the arrester element and the housing.

(e) The design and construction of the flame arresters shall permit easy inspection and cleaning of the flame arrester grid or "tube bank."

(f) Flame arrester grid shall be so designed as to allow minimum restriction to the flow of vapors. Efficient drainage of the arrester grid shall be provided.

(g) Flame arresters for use on cargo tanks shall be of not less than 2½ inches nominal pipe size.

(h) Housing of flame arresters shall be designed to withstand a hydrostatic pressure of at least 125 pounds per square inch without rupturing or showing permanent distortion.

(i) The net free area through the arrester grid shall in no case be less than 1½ times the cross-sectional area of the pipe inlet.

(j) The flame arrester housing may have screwed or flanged pipe connections, or such type of connections as may be approved by the Commandant. If flanged, the thickness and drilling shall comply with the standards for 125 pounds cast iron flanged fittings.

(k) Where the design of the flame arrester does not permit complete drainage of the condensate to the attached cargo tank or vent line, the housing shall be fitted with a plugged drain opening on the side of the atmospheric outlet of not less than ½ inch pipe size.

(l) The device shall be of first class workmanship and shall be free from imperfections which may affect its serviceability.

§ 162.016–4 *Inspection and testing.* (a) Flame arresters may be subject to inspection and tests at the plant of the manufacturer. An inspector may conduct such tests and examinations as may be necessary to determine compliance with this specification.

§ 162.016–5 *Marking.* (a) Each flame arrester shall be legibly marked with the style, type, or other designation of the manufacturer, the size, and name or registered trademark of the manufacturer.

§ 162.016–6 *Procedure for approval*—(a) *General.* Flame arresters of the type intended for use on tank vessels shall be approved for such use by the Commandant, U. S. Coast Guard, Washington 25, D. C.

(b) *Drawings and specifications.* Manufacturers desiring approval of a new design or type of flame arrester shall submit drawings in quadruplicate showing the design of the flame arrester, the sizes for which approval is desired, the size and material specifications of component parts, and the detail construction of arrester grid.

(c) *Pre-approval tests.* Before approval is granted, the manufacturer shall have tests conducted, or submit evidence that such tests have been conducted, and that the flame arrester has been found acceptable by the Underwriters' Laboratories, the Factory Mutual Laboratories, or by a properly supervised and inspected test laboratory acceptable to the Commandant, relative to determining the air flow capacity and vapor-air explosion resistance of a representative sample of the flame arrester in each size for which approval is desired. The explosion resistance of the assembly grid shall be determined by the explosion tests and the continuous flame tests. The results of these tests shall indicate the ability of the flame arrester assembly to withstand the vapor-air internal explosion pressures and its effectiveness in arresting the propagation of flame.

SUBPART 162.017 — PRESSURE-VACUUM RELIEF VALVES AND SPILL VALVES FOR TANK VESSELS

§ 162.017–1 *Applicable specifications.* (a) There are no other specifications applicable to this subpart.

§ 162.017–2 *Type.* (a) This specification covers the design and construction of pressure-vacuum relief valves and spill valves intended for use in venting systems on all tank vessels transporting inflammable or combustible liquids.

§ 162.017–3 *Materials, construction, and workmanship.* (a) The valves shall be of substantial construction and first-class workmanship and shall be free from imperfections which may affect its serviceability.

(b) Bodies of pressure-vacuum relief valves and spill valves shall be made of bronze or such corrosion-resistant material as may be approved by the Commandant.

(c) Valve discs, spindles, and seats shall be made of bronze or such corrosion-resistant material as may be approved by the Commandant.

(d) Where springs are employed to actuate the valve discs, the springs shall be made of corrosion-resistant material. Springs plated with corrosion-resistant material are not acceptable.

(e) Flame screens shall be made of corrosion-resistant wire.

(f) Nonmetallic materials will not be permitted in the construction of the valves, except bushings used in way of moving parts and gaskets may be made of nonmetallic material resistant to attack by the product carried.

(g) The design and construction of the valves shall permit overhauling and repairs without removal from the line.

(h) Valve discs shall be guided by a ribbed cage to prevent binding, and to insure proper seating. Where valve stems are guided by bushings suitably designed to prevent binding and to insure proper seating, the valves need not be fitted with ribbed cages.

(i) The discs shall close tight against the valve seat by metal to metal contact.

(j) Pressure-vacuum relief valves for venting cargo tanks shall be of not less than 2½ inches nominal pipe size.

(k) Bodies of valves shall be designed to withstand a hydrostatic pressure of at least 125 pounds per square inch without rupturing or showing permanent distortion.

(l) The valve discs may be solid or made hollow so that weight material may be added to vary the lifting pressure. If hollow discs are employed, a watertight bolted cover shall be fitted to encase the weight material. The pressure at which the discs open shall not exceed 120 percent of the set pressure.

(m) The free area through the valve seats at maximum lift shall not be less than the cross-sectional area of the valve inlet connection.

(n) Double flame screens of 20 x 20 corrosion-resistant wire mesh with a ½-inch corrosion-resistant separator or a single screen of 30 x 30 corrosion-resistant wire mesh shall be fitted on all openings to atmosphere. The net free area through the flame screens shall not be less than 1½ times the cross-sectional area of the vent inlet from the cargo tanks.

(o) Valve bodies may have screwed or flanged pipe connections, or such types of connections as may be approved by the Commandant. If flanged, the thickness and drilling shall comply with the standards for 150-pound bronze flanged fittings.

(p) Where design of valve does not permit complete drainage of condensate to attached cargo tank or vent line, the valve body shall be fitted with a plugged drain opening on the side of the atmospheric outlet of not less than ½-inch pipe size.

§ 162.017–4 *Inspections and testing.* (a) Pressure-vacuum relief valves and spill valves may be inspected and tested at the plant of the manufacturer. An inspector may conduct such tests and examinations as may be necessary to determine compliance with this specification.

§ 162.017–5 *Marking.* (a) Each valve shall be legibly marked with the style, type or other designation of the manufacturer, the size, pressure and vacuum setting and name or registered trade-mark of the manufacturer.

§ 162.017–6 *Procedure for approval*—(a) *General.* Pressure-vacuum relief valves and spill valves intended for use on tank vessels shall be approved for such use by the Commandant, U. S. Coast Guard, Washington 25, D. C.

(b) *Drawings and specifications.* Manufacturers desiring approval of a new design or type of pressure-vacuum relief valve and spill valve shall submit drawings in quadruplicate showing the design of the valve, the sizes for which approval is requested, method of operation, thickness and material specifications of component parts, diameter of seat opening and lift of discs, mesh and size of wire of flame screens.

(c) *Preapproval tests.* Before approval is granted, the manufacturer shall have tests conducted, or submit evidence that such tests have been conducted, by the Underwriters' Laboratories, the Factory Mutual Laboratories, or by a properly supervised and inspected test laboratory acceptable to the Commandant, relative to determining the lift, relieving pressure and vacuum, and flow capacity of a representative sample of the pressure-vacuum relief valve and spill valve in each size for which approval is desired. Reports of conducted tests, including flow capacity curves, shall be submitted.

Dated: March 21, 1950.

[SEAL] MERLIN O'NEILL,
Vice Admiral, U. S. Coast Guard,
Commandant.

[F. R. Doc. 50–2499; Filed, Mar. 24, 1950; 8:49 a. m.; 15 F. R. 1679–3/25/50]

Equipment Approved by the Commandant

[CGFR 50–7]

By virtue of the authority vested in me as Commandant, United States Coast Guard, by R. S. 4405, and 4491, as amended, 46 U. S. C. 375, 489, and section 101 of Reorganization Plan No. 3 of 1946 (11 F. R. 7875, 60 Stat. 1097, 46 U. S. C. 1), as well as the additional authorities cited with specific items below, the following approvals of equipment are prescribed and shall be effective for a period of five years from date of publication in the FEDERAL REGISTER unless sooner canceled or suspended by proper authority:

BUOYANT CUSHIONS, KAPOK, STANDARD

NOTE: Cushions are for use on motorboats of classes A, 1, or 2 not carrying passengers for hire.

Approval No. 160.007/93/0, Standard kapok buoyant cushion, U. S. C. G. Specification Subpart 160.007, manufactured by the Elvin Salow Co., 379–381 Atlantic Avenue, Boston 10, Mass., for James Bliss & Co., Inc., 220–222 State Street, Boston 9, Mass.

Approval No. 160.007/94/0, Standard kapok buoyant cushion, U. S. C. G. Specification Subpart 160.007, manufactured by Chic's Canvas Products, Inc., 123 Eighth Street, Ocean City, N. J.

(54 Stat. 164, 166; 46 U. S. C. 526e, 526p; 46 CFR 25.4–1, 160.007)

BUOYANT CUSHIONS, NONSTANDARD

NOTE: Cushions are for use on motorboats of classes A, 1, or 2 not carrying passengers for hire.

Rectangular kapok buoyant cushions manufactured by the Elvin Salow Co., 379–381 Atlantic Avenue, Boston 10, Mass., Dwg. No. 400, dated January 2, 1950, and Specifications dated January 2, 1950, in the following sizes with the amount of kapok indicated for each size:

Approval No.	Size (inches)	Kapok (ounces)
160.008/427/0	13 x 24 x 2	28
160.008/428/0	18 x 18 x 2	30
160.008/429/0	15 x 24 x 2	32
160.008/430/0	16 x 28 x 2	40
160.008/431/0	13 x 36 x 2	42
160.008/432/0	17 x 33 x 2	50
160.008/433/0	15 x 40 x 2	54
160.008/434/0	15 x 45 x 2	60
160.008/435/0	18 x 40 x 2	64

One robin doesn't make a spring but one lark is often responsible for a fall.

(54 Stat. 164, 166; 46 U. S. C. 526e, 526p; 46 CFR 25.4–1, 160.008)

LIGHTS (WATER); ELECTRIC, FLOATING, AUTOMATIC

Approval No. 161.001/3/0, Automatic floating electric waterlight (with bracket for mounting), Dwg. No. 606, Alt. 1, dated February 6, 1950, manufactured by Pomill Engineering Co., 17 Battery Place, New York 4, N. Y.

(R. S. 4417a, 4426, 4488, 49 Stat. 1544, 54 Stat. 346, and sec. 5 (e), 55 Stat. 244, as amended; 46 U. S. C. 367, 404, 481, 1333, 50 U. S. C. 1275; 46 CFR 33.3–6, 33.3–8, 33.7–1, 37.9–1, 59.52, 59.54b, 59.56, 60.45, 60.47b, 60.49, 76.48, 76.48a, 76.48b, 76.53, 94.53, 113.46)

TELEPHONE SYSTEMS, SOUND POWERED

Approval No. 161.005/12/1, Sound powered telephone station, selective ringing, common talking, 19 station maximum, bulkhead mounting, splashproof, with internal hand generator bell, Dwg. No. 1, Alt. 3, Type A, Model W, manufactured by Hose-McCann Telephone Co., Twenty-fifth Street and Third Avenue, Brooklyn 32, N. Y. (Supersedes Approval No. 160.005/12/0, published in FEDERAL REGISTER July 31, 1947.)

(R. S. 4417a, 4418, 4426, 49 Stat. 1544, 54 Stat. 346, and sec. 5 (e), 55 Stat. 244, as amended, 46 U. S. C. 367, 391a, 392, 404, 1333, 50 U. S. C. 1275; 46 CFR 32.9–4, 63.11, 79.12, 97.14, 116.10)

BOILERS, HEATING

Approval No. 162.003/109/0, Model 526 "C", bare fire tube heating boiler, welded steel plate construction, 30 pounds per square inch maximum pressure, Dwg. No. 38–8817, dated January 17, 1950, manufactured by The International Boiler Works Co., East Stroudsburg, Pa.

(R. S. 4417a, 4418, 4426, 4433, 4434, 49 Stat. 1544, 54 Stat. 346, and sec. 5 (e), 55 Stat. 244, as amended; 46 U. S. C. 367, 391a, 392, 404, 411, 412, 1333, 50 U. S. C. 1275; 46 CFR Part 52)

FIRE EXTINGUISHERS, PORTABLE, HAND, CARBON-DIOXIDE TYPE

Approval No. 162.005/28/0, Kidde Model 10T–1, 10-lb. carbon dioxide type hand portable fire extinguisher, Assembly Dwg. No. MS870185, dated May 7, 1948, Rev. B, dated May 20, 1949, Name plate Dwg. No. 270122, dated August 2, 1948, Rev. B, dated May 1, 1949, manufactured by Walter Kidde & Co., Inc., Belleville 9, N. J.

Approval No. 162.005/29/0, Kidde Model 15T–1, 15-lb. carbon dioxide type hand portable fire extinguisher, Assembly Dwg. No. MS870186, dated May 10, 1948, Rev. A, dated July 23, 1948, Name plate Dwg. No. 270123, dated August 4, 1948, Rev. A, dated August 9, 1948, manufactured by Walter Kidde & Co., Inc., Belleville 9, N. J.

(R. S. 4417a, 4426, 4479, 4492, 49 Stat. 1544, 54 Stat. 165, 166, 346, 1028, and sec. 5 (e), 55 Stat. 244, as amended; 46 U. S. C. 367, 391a, 404, 463a, 472, 490, 526g, 526p, 1333, 50 U. S. C. 1275; 46 CFR 25.5–1, 26.3–1, 27.3–1, 34.5–1, 61.13, 77.13, 95.13, 114.15)

VALVES, SAFETY RELIEF, LIQUEFIED COMPRESSED GAS

Approval No. 162.018/5/2, Type MS–8, pop safety relief valve, flanged inlet, flat synthetic rubber gasket type, for liquefied petroleum gas and anhydrous ammonia service; Dwg. No. 31–11869–F, revised November 14, 1949, net flow area 3.26 square inches; approved for a maximum set pressure of 250 pounds per square inch; flow rated at 105% of the following set pressures (discharge in cubic feet per minute measured at 60° F. and 14.7 pounds per square inch absolute); manufactured by American Car & Foundry Co., 30 Church Street, New York 8, N. Y.:

	100 p. s. i.	125 p. s. i.	200 p. s. i.	250 p. s. i.
Air	5,880	7,240	10,280	13,660
Liquefied petroleum gas	4,950	6,170	9,130	12,700
Anhydrous ammonia	7,430	9,130	12,780	16,900

(Supersedes Approval No. 162.018/5/1, published in FEDERAL REGISTER March 25, 1949.)

Approval No. 162.018/25/0, Type 1203, pop safety relief valve, flanged inlet, "0" ring synthetic rubber gasket type, for liquefied petroleum gas and anhydrous ammonia service; Dwg. No. 31–21697–A, revised November 14, 1949; net flow area 3.44 square inches, approved for a maximum set pressure of 250 pounds per square inch; flow rated at 105% of the following set pressures (discharge in cubic feet per minute measured at 60° F. and 14.7 pounds per square inch absolute); manufactured by American Car & Foundry Co., 30 Church Street, New York 8, N. Y.:

	100 p. s. i.	125 p. s. i.	200 p. s. i.	250 p. s. i.
Air	5,970	7,120	10,650	13,360
Liquefied petroleum gas	5,040	6,070	9,460	12,400
Anhydrous ammonia	7,550	8,960	13,210	16,520

Approval No. 162.018/26/0, Type 1208, pop safety relief valve, flanged inlet, "0" ring synthetic rubber gasket type, for liquefied petroleum gas and anhydrous ammonia service; Dwg. No. 31–35367, dated September 13, 1949; net flow area 1.54 square inches; approved for a maximum set pressure of 250 pounds per square inch; flow rated at 105% of the following set pressures (discharge in cubic feet per minute measured at 60° F. and 14.7 pounds per square inch absolute); manufactured by American Car & Foundry Co., 30 Church Street, New York 8, N. Y.:

	100 p. s. i.	125 p. s. i.	200 p. s. i.	250 p. s. i.
Air	2,140	2,550	4,380	5,000
Liquefied petroleum gas	1,800	2,170	3,890	4,640
Anhydrous ammonia	2,700	3,190	5,380	6,120

Approval No. 162.018/27/0, Type 1204, pop safety relief valve, 2½" screwed inlet, "0" ring synthetic rubber gasket type, for liquefied petroleum gas and anhydrous ammonia service; Dwg. No. 31–36684–A, revised February 1, 1950; net flow area 1.54 square inches; approved for a maximum set pressure of 125 pounds per square inch; flow rated at 105% of the following set pressures (discharge in cubic feet per minute measured at 60° F. and 14.7 pounds per square inch absolute); manufactured by American Car & Foundry Co., 30 Church Street, New York 8, N. Y.:

	100 p. s. i.	125 p. s. i.
Air	2,140	2,550
Liquefied petroleum gas	1,800	2,170
Anhydrous ammonia	2,720	3,210

Approval No. 162.018/28/0, Type 1209, pop safety relief valve, 3" screwed inlet, "0" ring synthetic rubber gasket type, for liquefied petroleum gas and anhydrous ammonia service; Dwg. No. 31–36684–A, revised February 1, 1950; net flow area 1.54 square inches; approved for a maximum set pressure of 125 pounds per square inch; flow rated at 105% of the following set pressures (discharge in cubic feet per minute measured at 60° F. and 14.7 pounds per square inch absolute); manufactured by American Car & Foundry Co., 30 Church Street, New York 8, N. Y.:

	100 p. s. i.	125 p. s. i.
Air	2,140	2,550
Liquefied petroleum gas	1,800	2,170
Anhydrous ammonia	2,720	3,210

Approval No. 162.018/29/0, Type 1206, pop safety relief valve, 4" screwed inlet, "0" ring synthetic rubber gasket type, for liquefied petro-

leum gas and anhydrous ammonia service; Dwg. No. 31–36666–A, revised February 1, 1950; net flow area 3.44 square inches; approved for a maximum set pressure of 125 pounds per square inch; flow rated at 105% of the following set pressures (discharge in cubic feet per minute measured at 60° F. and 14.7 pounds per square inch absolute); manufactured by American Car & Foundry Co., 30 Church Street, New York 8, N. Y.:

	100 p. s. i.	125 p. s. i.
Air	5,970	7,120
Liquefied petroleum gas	5,040	6,070
Anhydrous ammonia	7,550	8,960

Appproval No. 162.018/30/0, Type 1207, pop safety relief valve, 3½" screwed inlet, "0" ring synthetic rubber gasket type, for liquefied petroleum gas and anhydrous ammonia service; Dwg. No. 31–36666–A, revised February 1, 1950; net flow area 3.44 square inches; approved for a maximum set pressure of 125 pounds per square inch; flow rated at 105% of the following set pressures (discharge in cubic feet per minute measured at 60° F. and 14.7 pounds per square inch absolute); manufactured by American Car & Foundry Co., 30 Church Street, New York 8, N. Y.:

	100 p. s. i.	125 p. s. i.
Air	5,970	7,120
Liquefied petroleum gas	5,040	6,070
Anhydrous ammonia	7,550	8,960

(R. S. 4417a, and sec. 5 (e), 55 Stat. 244, as amended; 46 U. S. C. 391a, 50 U. S. C. 1275; 46 CFR Part 38)

RANGES, LIQUEFIED PETROLEUM GAS BURNING

Approval No. 162.020/20/0, South Bend gas range, Model No. 1000–L, approved by the American Gas Association, Inc., under Certificate No. 11–(44.0, –4.0 and –6.01).001, for liquefied petroleum gas service, manufactured by the Malleable Steel Range Manufacturing Co., South Bend 21, Ind.

Approval No. 162.020/21/0, South Bend gas range, Model No. 1002–L, approved by the American Gas Association, Inc., under Certificate No. 11–44–6.011, for liquefied petroleum gas service, manufactured by the Malleable Steel Range Manufacturing Co., South Bend 21, Ind.

Approval No. 162.020/22/0, South Bend gas range, Model No. 1003–L, approved by the American Gas Association, Inc., under Certificate No. 11–(44.0, –4.0 and –6.01).001, for liquefied petroleum gas service, manufactured by the Malleable Steel Range Manufacturing Co., South Bend 21, Ind.

Approval No. 162.020/23/0, South Bend gas range, Model No. 1020–L, approved by the American Gas Association, Inc., under Certificate No. 11–(44.0, –4.0 and –6.01).001, for liquefied petroleum gas service, manufactured by the Malleable Steel Range Manufacturing Co., South Bend 21, Ind.

Approval No. 162.020/24/0, South Bend gas range, Model No. 1022–L, approved by the American Gas Association, Inc., under Certificate No. 11–44–6.011, for liquefied petroleum gas service, manufactured by the Malleable Steel Range Manufacturing Co., South Bend 21, Ind.

Approval No. 162.020/25/0, South Bend gas range, Model No. 1023–L, approved by the American Gas Association, Inc., under Certificate No. 11–(44.0, –4.0 and –6.01).001, for liquefied petroleum gas service, manufactured by the Malleable Steel Range Manufacturing Co., South Bend 21, Ind.

Approval No. 162.020/26/0, South Bend gas range, Model No. 1025–L, approved by the American Gas Association, Inc., under Certificate No. 11–(44.0, –4.0 and –6.01).001, for liquefied petroleum gas service, manufactured by the Malleable Steel Range Manufacturing Co., South Bend 21, Ind.

(R. S. 4417a, 4426, 49 Stat. 1544, 54 Stat. 1028, and sec. 5 (e), 55 Stat. 244, as amended; 46 U. S. C. 367, 391a, 404, 463a, 1333, 50 U. S. C. 1275; 46 CFR 32.9–11, 61.25, 95.24, 114.25)

INDICATORS, BOILER WATER LEVEL, SECONDARY TYPE

Approval No. 162.025/38/0, Model A, Jerguson "Trulevel" gauge, remote reading boiler water level indicator, Dwg. Nos. R–16–C, Alt. 1, revised January 4, 1950, and R–18–C, Alt. 1, revised January 4, 1950, approved for a maximum steam pressure of 900 pounds per square inch, manufactured by the Jerguson Gage & Valve Co., 87 Fellsway, Somerville 45, Mass.

Approval No. 162.025/39/0, Model B, Jerguson "Trulevel" gauge, remote reading boiler water level indicator, Dwg. Nos. R–13–C dated January 27, 1950, and R–14–C, Alt. 1, revised January 25, 1950, approved for a maximum steam pressure of 900 pounds per square inch, manufactured by the Jerguson Gage & Valve Co., 87 Fellsway, Somerville 45, Mass.

Approval No. 162.025/40/0, Model M, Jerguson "Truscale" gauge, remote reading boiler water level indicator, fitted with high and low water alarms, Dwg. Nos. T–01–C, dated Jan. 31, 1950; T–09–C, Alt. 1, revised February 6, 1950; GD–500, dated January 26, 1950; GD–501, dated January 27, 1950; and GD–502, Alt. 1, revised February 16, 1950, approved for a maximum steam pressure of 900 pounds per square inch, manufactured by the Jerguson Gage & Valve Co., 87 Fellsway, Somerville 45, Mass.

(R. S. 4417a, 4418, 4426, 4433, 49 Stat. 1544, 54 Stat. 346, and sec. 5 (e), 55 Stat. 244, as amended; 46 U. S. C. 367, 391a, 392, 404, 411, 1333, 50 U. S. C. 1275; 46 CFR Part 52)

Dated: March 21, 1950.

[SEAL] MERLIN O'NEILL,
Vice Admiral, U. S. Coast Guard,
Commandant.

[F. R. Doc. 50–2501; Filed, Mar. 24, 1950; 8:50 a. m.; 15 F. R. 1681–3/25/50]

TERMINATION OF APPROVAL OF EQUIPMENT

[CGFR 50–8]

By virtue of the authority vested in me as Commandant, United States Coast Guard, by R. S. 4405 and 4491, as amended, 46 U. S. C. 375, 489, and section 101 of Reorganization Plan No. 3 of 1946, 11 F. R. 7875, 60 Stat. 1097, 46 U. S. C. 1, as well as the additional authorities cited with the specific items below, the following approvals of equipment are terminated because the items of equipment covered are no longer being manufactured:

FIRE EXTINGUISHERS, PORTABLE, HAND, CARBON-DIOXIDE TYPE

Termination of Approval No. 162.-005/9/0, Kidde Model 15D, 15-lb. carbon dioxide hand portable fire extinguisher, Installation Dwg. No. 81382, dated November 29, 1944, Name plate Dwg. No. 77106, Rev. Q, dated August 12, 1946, manufactured by Walter Kidde & Co., Inc., 675 Main Street, Belleville 9, N. J. (Approved, FEDERAL REGISTER, July 31, 1947.)

Termination of Approval No. 162.-005/10/0 Kidde Model 10D, 10-lb. carbon dioxide hand portable fire extinguisher, General Arrangement Dwg. No. 15530, Rev. B, dated July 3, 1944, Name plate Dwg. No. 77130, Rev. Q, dated August 8, 1945, manufactured by Walter Kidde & Co., Inc., 675 Main Street, Belleville 9, N. J. (Approved, FEDERAL REGISTER, July 31, 1947.)

Termination of Approval No. 162.-005/15/0, Kidde Model 10T, 10-lb. carbon dioxide hand portable fire extinguisher, Assembly Dwg. No. 82507, Rev. A, dated September 27, 1945, Name plate Dwg. No. 82508, Rev. A, dated October 4, 1945, manufactured by Walter Kidde & Co., Inc., 675 Main Street, Belleville 9, N. J. (Approved, FEDERAL REGISTER, September 18, 1947.)

Termination of Approval No. 162.-005/16/0, Kidde Model 15T, 15-lb. car-

bon dioxide hand portable fire extinguisher, Assembly Dwg. No. 82088, Rev. B, dated August 29, 1945, Name plate Dwg. No. 82307, Rev. A, dated September 19, 1945, manufactured by Walter Kidde & Co., Inc., 675 Main Street, Belleville, N. J.

(Approved, FEDERAL REGISTER, September 18, 1947.)

(R. S. 4417a, 4426, 4479, 4492, 49 Stat. 1544, 54 Stat. 165, 166, 346, 1028, and sec. 5 (e), 55 Stat. 244, as amended; 46 U. S. C. 367, 391a, 404, 463a, 472, 490, 526g, 526p, 1333, 50 U. S. C. 1275; 46 CFR 25.5–1, 26.3–1, 27.3–1, 34.5–1, 61.13, 77.13, 95.13, 114.15)

CONDITIONS OF TERMINATION OF APPROVALS

The termination of approvals of equipment made by this document shall be made effective upon the thirty-first day after the date of publication of this document in the FEDERAL REGISTER. Notwithstanding this termination of approval on any item of equipment, such equipment manufactured before the effective date of termination of approval may be used on merchant vessels so long as it is in good and serviceable condition.

Dated: March 21, 1950.

[SEAL] MERLIN O'NEILL,
Vice Admiral, U. S. Coast Guard, Commandant.

[F. R. Doc. 50–2500; Filed, Mar. 24, 1950; 8:50 a. m.; 15 F. R. 1682–3/25/40]

WELDING ELECTRODES

The following types of electrodes have been tested in accordance with the requirements of ASTM designation A233–48T for mild steel arc-welding electrodes in the presence of an American Bureau of Shipping Surveyor and the test report indicates that the requirements were met.

The McKay Co., York, Pa. *The McKay Co.* (*Manufacturer*) McKay 15D, Type E6010; McKay 11, Type E6011; and McKay 24, Type E6013.

OPERATING POSITIONS AND ELECTRODE SIZES

The Type E6010 1/16", 5/64", 3/32", 1/8", 5/32", and 3/16" diameter electrodes will be allowed for all position welding on direct current only; the 7/32", and 1/4" diameter electrodes will be allowed for horizontal fillet and flat positions on direct current only; the 5/16" diameter electrodes will be allowed for flat positions on direct current only.

The Type E6011 1/16", 5/64", 3/32", 1/8", 5/32", and 3/16" diameter electrodes will be allowed for all position welding on alternating and direct current; the 7/32", and 1/4" diameter electrodes will be allowed for horizontal fillet and flat positions on alternating and direct current; the 5/16" diameter electrodes will be allowed for flat positions on alternating and direct current.

The Type E6013 1/16", 5/64", 3/32", 1/8", 5/32", and 3/16" diameter electrodes will be allowed for all position welding on alternating and direct current, the 7/32" and 1/4" diameter electrodes will be allowed for horizontal fillet and flat positions on alternating and direct current; the 5/16" diameter electrodes will be allowed for flat positions on alternating and direct current.

Hollup Corp., 4700 West Nineteenth Street, Chicago 50, Ill. *Hollup Corp.* (*Manufacturer*) Sureweld, Type E–9016.

OPERATING POSITIONS AND ELECTRODE SIZES

The 3/32", 1/8", 5/32", and 3/16" diameter electrodes will be allowed for all position welding; the 7/32" and 1/4" diameter electrodes will be allowed for horizontal fillet and flat positions; the 5/16" diameter electrodes will be allowed for flat positions on alternating and direct current.

Metal and Thermit Corp., 120 Broadway, New York 5, N. Y. *Arcrods Corp.* (*Manufacturer*) Murex (2½ Cr.=1 Mo.) Type 4216.

OPERATING POSITION AND ELECTRODE SIZES

The 1/8" and 5/32" diameter electrodes will be allowed for all position welding. Special limitations require direct current and reverse polarity.

Westinghouse Electric Corp., East Pittsburgh, Pa. *Westinghouse Electric Corp.* (*Manufacturer*) Flexarc Type FP–2 E6012.

OPERATING POSITIONS AND ELECTRODE SIZES

The 5/32", 1/8", 5/32", and 3/16" diameter electrodes will be allowed for all position welding; the 7/32" and 1/4" diameter electrodes will be allowed for horizontal fillet and flat positions; the 5/16" diameter electrodes will be allowed for flat positions on alternating and direct current.

Metal and Thermit Corp., 120 Broadway, New York 5, N. Y. *Arcrods Corp.* (*Manufacturer*) Murex HTS, Type E6016.

OPERATING POSITIONS AND ELECTRODE SIZES

The 1/8", 5/32", and 3/16" diameter electrodes will be allowed for all position welding; the 7/32" and 1/4" diameter electrodes will be allowed for horizontal fillet and flat positions; the 5/16" diameter electrodes will be allowed for flat positions on alternating and direct current.

The McKay Co., York, Pa. *The McKay Co.* (*Manufacturer*) McKay 16, Type E6020.

OPERATING POSITIONS AND ELECTRODE SIZES

The 3/32", 1/8", 5/32", 3/16" 7/32", and 1/4" diameter electrodes will be allowed for horizontal fillet and flat positions; the 5/16" diameter electrodes will be allowed for flat positions for alternating and direct current.

ARTICLES OF SHIPS' STORES AND SUPPLIES

Articles of Ships' Stores and Supplies certificated from January 25, 1950, to February 1950, inclusive, for use on board vessels in accordance with the provisions of part 147 of the regulations governing explosives or other dangerous articles on board vessels, are as follows:

West Disinfecting Co., 42–16 West Street, Long Island City 1, N. Y., Certificate No. 301, dated January 31, 1950. "Hydrosect."

West Disinfecting Co., 42–16 West Street, Long Island City 1, N. Y., Certificate No. 302, dated February 1, 1950. "Lustreclean."

West Disinfecting Co., 42–16 West Street, Long Island City 1, N. Y., Certificate No. 303, dated February 1, 1950. "Pine Lustreclean."

West Disinfecting Co., 42–16 West Street, Long Island City 1, N. Y., Certificate No. 304, dated February 1, 1950. "Westwax."

AFFIDAVITS

The following affidavits were accepted from February 15 to March 15, 1950:

Todd Shipyards Corp. (*Hoboken Division*), Park Avenue and Seventeenth Street, Hoboken, N. J. Valves and fittings.

Todd Shipyards Corp. (*Brooklyn Division*), Foot of Dwight Street, Brooklyn 31, N. Y. Valves and fittings.

INVESTIGATING UNITS

Coast Guard Merchant Marine Investigating Units and Merchant Marine Details investigated a total of 491 cases during the month of February 1950. From this number, hearings resulted involving 18 officers and 30 unlicensed men. In the case of officers, no licenses were revoked, 3 were suspended, 5 were suspended with probation granted, none were voluntarily surrendered, 4 cases were dismissed after hearing and 1 hearing was closed with an admonition. Of the unlicensed personnel, 3 certificates were revoked, 9 were suspended, 16 were suspended with probation granted, 3 were voluntarily surrendered, 2 were closed with an admonition and 2 were dismissed after hearing.

Merchant Marine Personnel Statistics

MERCHANT MARINE LICENSES ISSUED DURING FEBRUARY 1950

DECK OFFICERS

		REGION								Total	
		Atlantic coast		Gulf coast		Great Lakes and rivers		Pacific coast			
		O	R	O	R	O	R	O	R	O	R
Master	Ocean	14	46	7	22	1	2	9	38	31	108
	Coastwise	0	7	1	2	0	0	0	3	1	12
	Great Lakes	0	3	0	0	19	81	0	0	19	84
	B. S. & L.	3	22	0	3	0	0	2	8	5	33
	Rivers	1	3	0	4	3	7	0	0	4	14
Chief mate	Ocean	9	25	4	11	0	4	4	14	17	54
	Coastwise	0	2	0	0	0	0	0	0	0	2
Second mate	Ocean	12	27	4	10	0	7	3	22	19	66
	Coastwise	0	2	0	0	0	0	0	0	0	2
Third mate	Ocean	5	22	4	6	0	10	6	11	15	49
	Coastwise	0	0	0	0	0	0	0	1	0	1
	Great Lakes	0	0	0	0	0	0	0	0	0	0
Mate	B. S. & L.	1	1	0	0	0	0	0	7	1	8
	Rivers	0	0	0	1	6	4	0	0	6	5
Pilots	B. S. L. & R.	47	65	10	24	87	132	8	33	152	254
Master	Uninspected vessels	1	1	0	0	0	0	1	4	2	5
Mate	Uninspected vessels	1	0	0	0	0	0	0	0	1	0
Total		94	226	30	83	116	247	33	141	273	697
Grand total		320		113		363		174		970	

ENGINEER OFFICERS

Steam	Chief engineer: Unlimited	7	65	2	25	6	13	5	46	20	149
	Chief engineer: Limited	1	27	1	6	16	73	1	6	19	112
	First assistant engineer: Unlimited	13	39	2	6	4	7	6	23	25	75
	First assistant engineer: Limited	0	1	0	1	26	38	0	1	26	41
	Second assistant engineer: Unlimited	17	60	4	21	6	15	2	21	29	117
	Second assistant engineer: Limited	0	1	0	0	7	36	0	0	7	37
	Third assistant engineer: Unlimited	5	45	4	10	8	32	5	31	23	118
	Third assistant engineer: Limited	0	0	0	0	27	3	0	0	27	3
Motor	Chief engineer: Unlimited	1	17	0	4	2	8	2	15	5	44
	Chief engineer: Limited	8	22	0	6	3	3	3	12	14	43
	First assistant engineer: Unlimited	1	0	1	0	0	2	1	2	3	4
	First assistant engineer: Limited	2	0	0	2	1	0	0	1	3	3
	Second assistant engineer: Unlimited	2	2	0	0	0	1	0	16	2	19
	Second assistant engineer: Limited	0	0	0	0	0	0	0	0	0	0
	Third assistant engineer: Unlimited	1	58	0	14	0	32	1	34	2	138
	Third assistant engineer: Limited	0	0	1	0	0	0	0	0	1	0
Uninspected vessels	Chief engineer	1	0	1	0	2	0	1	1	5	1
	Assistant engineer	1	0	0	0	0	0	11	0	12	0
Total		61	337	16	95	108	263	38	209	223	904
Grand total		398		111		371		247		1127	

ORIGINAL SEAMEN'S DOCUMENTS ISSUED MONTH OF FEBRUARY 1950

Region	(1) Staff officer	(2) Continuous discharge book	(3) U. S. merchant mariner's documents	(4) AB any waters unlimited	(5) AB any waters 12 months	(6) AB Great Lakes 18 months	(7) AB tugs and towboats any waters	(8) AB bays and sounds [1]	(9) AB seagoing barges	(10) Lifeboatman	(11) Q. M. E. D.	(12) Radio operators	(13) Certificate of service	(14) Tankerman
Atlantic coast	25	1	325	98	32	1	----	----	----	115	53	2	257	17
Gulf coast	9	61	138	27	5	----	----	----	----	19	43	1	178	11
Pacific coast	12	----	160	60	13	----	----	----	----	75	34	----	116	2
Great Lakes and rivers	----	----	324	12	21	11	----	----	----	29	52	----	298	13
Total	46	62	947	197	71	12	0	0	0	238	182	3	849	43

[1] 12 months, vessels 500 gross tons or under not carrying passengers.

NOTE.—Columns 4 through 14 indicate endorsements made on U. S. merchant mariner's documents.

WAIVERS OF MANNING REQUIREMENTS FROM FEB. 1, TO FEB. 28, 1950

Region	Number of vessels	Deck officers substituted for higher ratings	Engineer officers substituted for higher ratings	Able seamen substituted for deck officers	Ordinary seamen substituted for able seamen	Qualified members of engine department substituted for engineer officers	Wipers or coal passers substituted for qualified members of engine department	Wipers, coal passers or cadets substituted for engineer officers	Ordinary seamen or cadets substituted for deck officers	Total
Atlantic coast										
Gulf coast										
Pacific coast										
Great Lakes										
Total										

NOTE.—In addition, no individual waivers were granted to permit the employment of able seamen holding certificates for "any water—12 months" in excess of the 50 percent authorized by general waiver.

U. S. GOVERNMENT PRINTING OFFICE: 1950