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of the Marine Safety Council

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of the Marine Safety Council

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Please pass this magazine along when you have finished reading it.

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cover

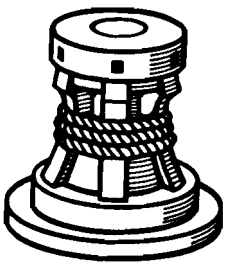
The men shown on our cover are engaged in an offshore construction operation. Work offshore can be dangerous because of the working environment and the nature of the work involved. Summaries of offshore fatalities and the hazardous working conditions contributing to them can be found in this month's Lessons from Casualties, starting on page 15.

The following letter and contribution were sent in by one of our readers in Norway:

Dear Editor,

The issues of "Proceedings" are regularly received and read with great interest. From the Aug./ Nov. issue the new department added, "Chemical of the Month," was highly appreciated. Your appointment as the new editor has also been noted, and, considering the close connection between the "Proceedings"/U.S. Coast Guard and the merchant vessel fleet, and the fact that vessels are still spoken of as females, I enclose a poem picked up some time ago, explaining the close connection. Happy New Year to you and "Proceedings."

M. J. Midttun



WHY IS A VESSEL A "SHE"?

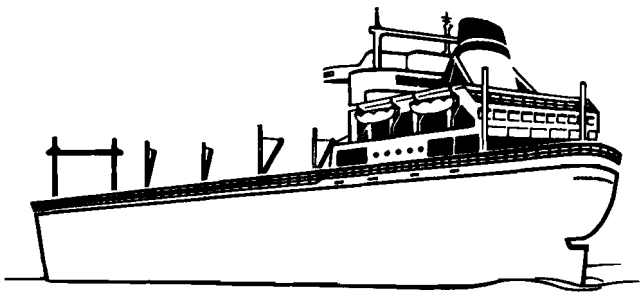
We always call a ship a "she" and not without a reason.
For she displays a well-shaped knee regardless of the season.
She scorns the man whose heart is faint and doesn't show him pity,
And like a girl she needs the paint to keep her looking pretty.

For love she'll brace the ocean vast, be she a gig or a cruiser,
But if you fail to tie her fast you're almost sure to lose her.
On ships and dames we pin our hopes, we fondle them and dandle them,
And every man must know his ropes or else he cannot handle them.

Be firm with her and she'll behave when skies are dark above you,
And let her take a water wave—praise her, and she'll love you.
That's why a ship must have a mate; she needs a good provider,
A good strong arm to keep her straight—to comfort her and guide her.

For such she'll brace the roughest gales and angry seas that crowd her,
And in a brand new suit of sails no dame looks any prouder.
The ship is like a dame in that she's feminine and swanky;
You'll find the one that's broad and fat is never mean and cranky.

Yes, ships are ladylike indeed, for take them altogether,
The ones that show a lot of speed can't stand the roughest weather.



Contributions from readers are always welcome. Does anyone out there know what "dandle" means?

Maritime Sidelights

Coast Guard Publishes New Pamphlet on Styrene

The Coast Guard would like to draw attention to the fact that it has a new publication available, M16616.5, "Safe Handling of Styrene." The new pamphlet is intended to provide an easy-to-read, illustrated guide to handling styrene in bulk quantities. The points made in the pamphlet do not replace but rather complement Federal regulations affecting the shipment of hazardous materials. The publication can be ordered by writing or calling: Commandant, Cargo and Hazardous Materials Division, U.S. Coast Guard, Washington, DC 20593; (202) 426-6262. Those who would like more information or would like to submit comments are also asked to contact that office.

New Regulation Requires Visual Distress Signaling Devices

As of January 1, 1981, all recreational boats when used on coastal waters and boats owned in the United States when operating on the high seas must be equipped with visual distress signals. "Coastal waters" is defined as including the territorial seas, Great Lakes, and the bays and sounds emptying into these waters as well as the associated rivers up to a point where the rivers are less than two miles wide.

The only exceptions are during daytime (sunrise to sunset) for:

- recreational boats less than 16 feet in length;
- boats participating in organized events such as races, regattas, or marine parades;
- open sailboats not equipped with propulsion machinery and less than 26 feet in length; and
- manually propelled boats.

These boats need to carry night signals only when used at night on the waters described above.

The new requirements are set forth in detail in a new publication called "Visual Distress Signals for Recreational Boaters." Copies may be obtained from the nearest Coast Guard Boating Safety Office or Coast Guard Auxiliary unit.

As indicated by the title, the pamphlet is directed primarily toward recreational boaters, but the requirements discussed also apply to operators of vessels engaged in the carrying of six or fewer passengers. The Visual Distress Signal requirements for most commercial vessels can be found in Title 46 of the Code of Federal Regulations.

President Signs Pollution Protocol

On October 21, 1980, the President signed into law a bill implementing the Protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships, 1973.

The 1978 Marine Pollution Protocol, ratified by the United States on August 12, 1980, was produced at the International Conference on Tanker Safety and Pollution Prevention held in London in 1978 at the behest of the United States. The Port and Tanker Safety Act signed into law on October 17, 1978, was the first major step in implementing the results of the Tanker Safety Conference. The new Act, which addresses a number of environmental issues related to pollution from tankers carrying oil and chemicals, completes the legislative implementation of the Protocol.

The new legislation, which applies to all U.S.-flag vessels wherever located and to all foreign-flag vessels when within the jurisdiction of the United States, provides for the issuance of certificates for vessels to ensure compliance and for the detention of vessels that are not in compliance. It also requires immediate reporting of all actual or probable polluting discharges, complements the reporting requirements of existing domestic law, and details a procedure to ensure that adequate reception facilities for oil and noxious liquid substance residues are provided.

Set Your Calendars

Interested readers should note that the following meetings have been scheduled:

RoRo 81
The Fifth International Conference and Exhibition on Marine Transport Using Roll-on Roll-off Methods
Congress Centrum Hamburg
June 30 - July 2, 1981

Gastech 81
The Eighth International LNG/LPG Conference and Exhibition
Congress Centrum Hamburg
October 20 - 23, 1981

MariChem 82
The Fourth International Conference and Exhibition on the Transportation, Handling and Storage of Bulk Chemicals
RAI Congress Centre, Amsterdam
June 22 - 24, 1982

For further information contact:

Conference Secretariat
2 Station Road
Rickmansworth
Herts WD3 1QP
England
Tel.: (09237) 76363
Telex: 924312

Changes Made in Boating Safety Law

On October 14, 1980, the President signed into law a bill amending the Federal Boat Safety Act of 1971. The new law establishes a National Boating Safety and Facilities Improvement Program which, through a Fund financed by motorboat fuel taxes, is to provide grants for State boating safety and facilities improvement programs.

The grants for both purposes will be administered by the Coast Guard. The Coast Guard previously helped States develop boating safety programs with grants from general revenue, but funding from

that source was discontinued after fiscal 1979. Federal use of motorboat fuel taxes for State recreational boating facilities was formerly channeled through the Land and Water Conservation Fund administered by the Heritage Conservation and Recreation Service.

The new Act authorizes appropriations of $10 million for State recreational boating safety programs and $10 million for State recreational boating facilities improvement programs for each of the fiscal years 1981, 1982, and 1983. As this issue was going to press, however, the funds had yet to be appropriated.

Further Details on New Inland Rules

As was announced in the last issue of the Proceedings, the Inland Navigational Rules Act of 1980 was signed by President Carter on December 24, 1980. This new law will supersede the old Inland Rules, the Western Rivers Rules, the Great Lakes Rules, their respective pilot rules, and parts of the Motorboat Act of 1940. Copies of the Act can be obtained from the Government Printing Office by calling (202) 783-3238 or writing: Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. The price per copy is $ 1.50. A check or money order may be sent with the order, or the person ordering the document may use his VISA or MasterCard. Orders should specify Public Law 96-591, Inland Navigational Rules Act of 1980, Stock Number 022-003-92759-0.

A new edition of CG-169, Navigation Rules, International—Inland, will be published late this year. The publication will no longer be distributed free but will be available for purchase from the Government Printing Office.

The new Inland Navigation Rules will go into effect everywhere except on the Great Lakes on December 24, 1981. The effective date for the Great Lakes will be set in coordination with the Canadian Coast Guard. The old navigation rules will be repealed on the effective date of the new rules.

Five technical annexes will be published this year as regulations to supplement the statutory Inland Navigation Rules. The first four of these will parallel the four technical annexes to the 72 COLREGS. Annex I, Positioning and Technical Details of Lights and Shapes, will be similar to Annex I to the 72 COLREGS but will be tailored to the conditions found on U.S. inland waters. Annex II, Additional Signals for Fishing Vessels Fishing in Close Proximity, is expected to be identical to its 72 COLREGS counterpart. Annex III, Technical Details of Sound Appliances, will incorporate changes in the criteria for measuring sound-pressure levels dictated by experience with the international Annex. The Inland Rules Distress Signals will be copied with little or no change from Annex IV to the 72 COLREGS. As in the 72 COLREGS, Rule 38 lists temporary or permanent exemptions from certain technical provisions to allow for a smooth transition from the old to the new Rules. Annex V will contain rules for special situations. Although Annex V will be called "Pilot Rules" because it will carry over a small portion of the existing pilot rules to be reissued under the authority of the new Act, it will not be nearly as important as the old sets of pilot rules were. Most of the old pilot rules are covered by the new statutory Inland Rules.

Rule 1(e) of the new Inland Rules provides for alternative compliance by vessels of special construction or purpose which, because of their special function, cannot fully comply with certain technical requirements in the new rules. Regulatory procedures for applying for certificates of alternative compliance will be published in the Federal Register after they have been finalized.

The five technical annexes and the procedures for alternative compliance will be published individually in the Federal Register as notices of proposed rulemaking between now and this summer. There will be a public comment period of 60 days or more before final rules are written and published.

Future issues of the Proceedings will provide a closer look at important provisions in the new Inland Navigation Rules and compare them with both the International Rules and the several sets of inland rules now in use.

SOLAS Regulations Avaliable from Commercial Suppliers

Companies trying to obtain copies of the Safety of Life at Sea Convention (SOLAS) regulations developed in 1960 and 1974 by IMCO, the Inter-Governmental Maritime Consultative Organization, may have been frustrated. The SOLAS 1960 and 1974 regulations are no longer available from the Coast Guard. All is not lost, however, as there are two commercial suppliers. Companies located on the East Coast should try:

New York Nautical Instrument Co.
140 West Broadway
New York, NY 10013
(212) 962-4522

Those on the West Coast should contact:

Southwest Instrument Co.
235 West 7th Street
San Pedro, CA 90731
(213) 832-0358

Both companies offer all IMCO publications. Because of the frequent fluctuation in international postage and shipping rates, prices for these publications are subject to change. Both companies will gladly quote their current prices upon request. ‡

Please include your mailing label when sending in address changes.

In the introduction to last month's Keynotes section, we explained the Coast Guard's process for promulgating regulations. As noted then, we would like to inform as many people as possible as early as possible of Coast Guard intent in the rulemaking process.

The Marine Safety Council is the primary group deciding whether or not a regulation is actually necessary. Several years ago, the Marine Safety Council acted only when a regulatory package was ready to be printed in the Federal Register. Presently, however, the Council is involved even before a proposed notice is drafted. At its monthly meetings the Marine Safety Council reviews "work plans," in which additional regulations, regulation changes, etc, are recommended. It is only after this review that the Coast Guard by majority vote of the Council decides whether to permit further regulatory action on a particular subject.

Commencing with this issue, we will publish a summary of Marine Safety Council actions taken during these monthly meetings. This month's summary can be found following the Keynotes.

The following were published between December 9, 1980, and January 15, 1981:

Final rules: CGD 79-152 Design and Equipment Standards for Vessels Transferring Outer Continental Shelf Oil, December 15, 1980. CGD 78-041a Puget Sound VTS Area, December 22, 1980. CGD 80-46 and 80-47 (published together) Electrical and Fuel Systems, Standards for Recreational Boats, December 29, 1980. CGD 76-096 Deepwater Port Safety Zone, December 29, 1980. CGD 79-126 Procedure for Exemption from the Requirement for Segregated Ballast Tanks, Dedicated Clean Ballast Tanks or a Crude Oil Washing System for Existing Tank Vessels, January 15, 1981. CGD 79-137 Outboard Motors, Start-in-Gear Protection, January 15, 1981.

Proposed rules: CGD 79-160 Line Throwing Appliances; Required Equipment on Merchant Vessels, December 11, 1980, correction January 15, 1981. CGD 79-116/79-116a Tankerman Requirements/Qualifications of Persons in Charge of Oil Transfer Operations, December 18, 1980. CGD 77-081 Oceanographic Research Vessels, December 22, 1980. CGD 79-013 Identification of Boats, December 29, 1980. CGD 77-147 Marine Engineering Regulations; ASME U or M Symbol, December 29, 1980. CGD 77-115 Manufacturer and Dealer First-Purchase List Requirement, December 29, 1980. CGD 77-233 Navigation Lights for Small Vessels (supplemental notice), December 29, 1980. CGD 80-148 Great Lakes Pilotage Rates, January 12, 1981.

Notices: CGD 80-144 Approval Notice (Equipment List), December 15, 1980. CGD 80-153 Port Access Routes; Preliminary Findings of Study, December 15, 1980. CGD 80-145 Equipment List—Termination, December 22, 1980.

Any questions regarding regulatory dockets should be directed to Commander A. D. Utara (G-CMC), U.S. Coast Guard Headquarters, 2100 Second St. SW, Washington, DC 20593; (202) 426-1477.

* * *

Revision of Electrical Regulations
CGD 74-125(A)

This regulation will constitute a general revision and updating of the electrical regulations to conform with the latest technology. It will include steering requirements for vessels other than tank vessels.

This revision is necessary because industrial standards for electrical engineering have changed in the past few years and the regulations must be brought up to date to reflect current industry practices.

An initial notice of proposed rulemaking (NPRM) was published on June 27, 1977 (42 FR 32700). A supplemental NPRM was published as CGD 74-125A on March 3, 1980 (Part VII).

New Tank Barge Construction
CGD 75-083
Upgrade of Existing Tank Barge Construction
CGD 75-083a

This action comprises two regulatory projects centered on tank barge construction standards. These projects were the result of a Presidential initiative of March 17, 1977, directing a study of the tank barge pollution problem. One project will address new barge construction, while the other will pertain to existing barges. Joint public hearings were held, and regulatory documents for both will be published at the same time.

In July 1977 the Coast Guard began a reexamination of the tank barge construction standards. It was determined that new construction would be treated separately from existing barges. An advance notice of proposed rulemaking (ANPRM) was then issued to gather additional data and assess impacts related to existing barges.

The new NPRM on tank barge construction, withdrawing the prior NPRM, and the ANPRM for existing tank barges were published as part VI of the Federal Register of June 14, 1979 (44 FR 34440 and 44 FR 34443, respectively).

Public hearings on the dockets were held as follows: August 2, 1979, Washington, DC; August 15, 1979, Seattle, Washington; August 23, 1979, New Orleans, Louisiana; September 5, 1979, Washington, DC; and September 7, 1979, St. Louis, Missouri. The comments made at the hearings have been incorporated in the docket.

On Thursday, November 8, 1979, a Federal Register notice extended the comment period on the project. This extension was based on the continued public interest and ran to December 1, 1979.

A Supplementary Notice was published as Part III of the Federal Register of March 13, 1980 (44 FR 16438). This notice informs the public of a deferment in the rulemaking process for these dockets. The comments received have raised significant questions con-

cerning these proposals. It was decided that the entire tank barge pollution problem warranted a carefully considered study by a recognized independent body. The National Academy of Sciences/ National Research Council will conduct the study. Part of the study, a two-day workshop, took place April 15 and 16, 1980. The study will be completed by the end of January 1981. The Coast Guard will defer any further rulemaking on these proposals until completion of the study, and the dates in the proposals of June 14, 1979, are no longer valid. If the Coast Guard should pursue further action on these proposals, a new timetable will have to be developed.

Anyone wishing to obtain copies of the rulemaking may do so by contacting Commander A. D. Utara, Marine Safety Council (address is given in the introduction to the Keynotes section).

Pollution Prevention, Vessels and Oil Transfer Regulations CGD 75-124a

This regulation will reduce accidental or intentional discharge of oil or oily wastes during vessel operations.

The basis of this regulation is threefold. First, there is the need to reduce the number and incidence of oil spills. Second, this regulation will help to clarify the existing rules. Finally, this regulation covers the additional requirement for oil-water separators under the 1973 International Convention for the Prevention of Pollution from Ships.

An NPRM was published on June 27, 1977 (42 FR 32670), and a supplemental NPRM was published on October 27, 1977 (42 FR 56625). Because of substantive changes in the regulation, there is currently no scheduled publication date for the final rule.

Construction and Equipment Existing Self-propelled Vessels Carrying Bulk Liquefied Gases CGD 77-069

These regulations will amend the current ones to include the substantive requirements of the "Code for Existing Ships Carrying Liquefied Gases in Bulk" adopted by the Inter-Governmental Maritime Consultative Organization (IMCO). The use of liquefied gas has increased, as have the problems associated with it. Because of its unique properties and the dangers associated with them, new regulations are being drafted. The environmental impact statement and regulatory analysis were completed in February 1979, and an NPRM on these regulations is anticipated in April 1981.

Licensing of Pilots CGD 77-084

This regulation takes into account the problems caused by increased ship size and unusual maneuvering characteristics. The proposal will require recency of service for each route upon which a pilot is authorized to serve, licensing with tonnage limitations commensurate with pilot experience, and consideration of ship-handling simulator training for pilots of very large vessels. A regulatory analysis and work plan were completed in October 1978. The NPRM was published on November 28, 1980 (45 FR 79258), and corrected on December 8, 1980 (45 FR 80843). A calendar of scheduled public hearings appears at the end of the Keynotes.

Revision of 46 CFR 157.20-5 Division into Three Watch Regulation CGD 78-037

This revision will require an adjustment in vessel manning requirements to bring them into line with current legislation. It will change the requirements which identify personnel who must be used on the three watches and personnel who may be employed in a day working status. An NPRM formerly scheduled to be published on this docket in January 1980 has been deferred pending legislative action in Congress.

Tank Vessel Operations-- Puget Sound CGD 78-041

This regulation governs the operation of tank vessels in the Puget Sound area. It was initiated to reduce the possibility of environmental harm resulting from oil spills in Puget Sound. This is to be accomplished by governing the operation of tankers and reducing the risk of collision or grounding.

Former Secretary of Transportation Brock Adams signed a 180-day interim rule on March 14, 1978, prohibiting entry of oil tankers in excess of 125,000 deadweight tons in Puget Sound; this appeared in the Federal Register of March 23, 1978 (43 FR 12257). An ANPRM was published on March 27, 1978 (43 FR 12840). An extension of the interim rule was published in the Federal Register in order to allow the Coast Guard adequate time to complete this rulemaking.

The public hearings scheduled for June 11 and 12 in Seattle, Washington, June 13 in Mt. Vernon, Washington, and June 14 in Port Angeles, Washington, have been completed, and all the comments received have been entered in the docket files for consideration. The extension of the interim navigation rule was published on June 21, 1979 (44 FR 36174). This extension became effective July 1 and will be in effect until the Coast Guard prints notice of its cancellation. A supplemental NPRM was published on July 21, 1980 (45 FR 48827). Copies of documents or the transcripts of the hearings may be obtained by writing to the Marine Safety Council. A final rule on the docket is currently expected in December 1981.

Personnel Job Safety Requirements for Fixed Installations on the Outer Continental Shelf CGD 79-077

This regulation is concerned with the health and safety requirements for installations engaged in oil field exploration and development. This action was mandated by pending Outer Continental Shelf (OCS) legislation. It will provide more comprehensive protection for per-

sonnel employed in vessels and installations in the oil trade.

Qualifications of the
Person in Charge of
Oil Transfer Operations,
Tankerman Requirements
CGD 79-116 and 79-116A

These regulations will redefine and establish qualifying criteria for the certifying of individuals engaged in the carriage and transfer of dangerous cargoes in bulk.

In has been found that most pollution incidents are the result of personnel error; consequently, the minimum qualifications of persons involved in handling polluting substances should be specified.

New NPRMs have been approved by the Secretary of Transportation and were published on December 18, 1980 (45 FR 83268 and 83290). A calendar of scheduled public hearings appears at the end of the Keynotes.

Shipboard Noise
Abatement Standards
CGD 79-134

These standards will establish acceptable sound levels for each of the various vessel compartments based on the latest technology. The standards will differentiate acceptable sound levels for both existing vessels and new vessels, specify acceptable methods of compliance, and establish a hearing conservation program.

During the development of these standards, the U.S. Naval Ocean Systems Center (NOSC), San Diego, California, was contracted by the Coast Guard to evaluate sound levels aboard several U.S. merchant vessels, study the data obtained, and define the extent of the noise problem. NOSC was asked to use this data and other information available to recommend a set of noise levels to be included in the proposed standards for the control and/or elimination of the shipboard noise problem.

This study has been completed. Copies are available through the National Technical Information Service (NTIS), Springfield, Virginia 22161; request NOSC technical documents numbers 243, 254, 257, 267, and 405.

Personnel and Manning
Standards for
Foreign Vessels
CGD 79-081(B)

This regulation, deemed necessary to reduce the probability of oil spills, will establish minimum manning levels for foreign tank vessels operating in U.S. navigable waters. It will also establish procedures for the verification of training, qualification, and watchkeeping standards. An NPRM was published in the Federal Register on November 17, 1980 (45 FR 75712).

Personnel Safety and Health
Requirements for
Industrial Vessels
CGD 80-15

This regulation is similar to CGD 79-077 and covers vessels engaged in exploration, supply, and support on the Outer Continental Shelf (OCS). Inasmuch as the safety of the workers on construction vessels will be covered largely by CGD 79-065, Marine Personnel Safety Standards, this project has been withdrawn.

* * *

A complete listing of all Coast Guard proposed regulations, both "significant" and "non-significant," appeared in the Monday, August 25, 1980 Federal Register (45 FR 56538).

The Department of Transportation is proposing to revise its procedures for considering environmental impacts. The purpose of the revisions would be to provide guidance on the format and content of environmental assissments, findings of no significant impact, and environmental impact statements.

Written comments shold reference Notice No. 80-23 of the Federal Register and be submitted by February 27 to:

Director
Office of Environment and
Safety
P-20
U.S. Department of
Transportation
Washington, DC 20590

The complete text of the notice appears in the December 29 edition of the Federal Register.

Actions of the
Marine Safety Council

January 7 Meeting

CGD 80-157 Implementation and Interpretation of the Inland Rules

As noted in the Maritime Sidelights, the Inland Navigational Rules Act of 1980 permits alternative compliance with the rules for vessels of special construction or purpose. Rather than deal with requests for alternative compliance on an ad hoc basis or set up only informal/internal policy guidelines, the Council decided to issue procedural regulations to assist the affected owners, operators, or builders of vessels. These regulations will parallel those being promulgated for alternative compliance with the International Navigation Rules. The regulations are intended to make the procedures less burdensome to industry. A target date for a notice of proposed rulemaking has been set for January or February.

CGD 80-158 Annex V to Inland Rules—Pilot Rules

The existing pilot rules will be repealed when the new Inland

Navigation Rules become effective in December 1981 (see Maritime Sidelights). The Rules of the Road Advisory Committee recommended that supplemental regulations providing the flexibility needed to deal with special and local situations be promulgated as an Annex to the Inland Rules. The existing pilot rules are to be used as a basis for the new regulations. Because of the need to have the regulations published as early as possible, the Coast Guard hopes to print the notice of proposed rulemaking in May 1981 and the final rule in August.

CGD 80-159 Damage Stability and Flooding Protection Standards for Great Lakes Bulk Dry Cargo Vessels

This project replaces and enlarges upon CGD 77-162, which was limited to subdivision and stability standards and is being withdrawn. The new proposal is upgraded to a "significant" regulatory package (reviewed by the Secretary of Transportation prior to printing). Because of the financial burden and technical difficulties involved in retrofitting all existing Great Lakes bulk cargo ships with one-compartment watertight subdivision characteristics, the Coast Guard will look to other methods of preventing catastrophic sinkings of Great Lakes vessels and the attendant loss of a large percentage of the vessels' crews caused by flooding. Since many possible solutions have to be reviewed, it is not anticipated that a notice of proposed rulemaking will be submitted to the Marine Safety Council for review until November 1981.

CGD 80-160 Material Standards for Fixed Facilities on the Outer Continental Shelf

A recent Memorandum of Understanding between the Coast Guard and the U.S. Geological Survey gave the Coast Guard responsibility for ensuring adequate protection of personnel. In certain areas, such as firefighting equipment, the U.S. Geological Survey will withdraw its regulations when the Coast Guard publishes revised rules. This regulations project will address:

1. Revision of existing fire-protection requirements, including structural fire protection, fire mains, fixed firefighting systems, helicopter installations, and quarters construction.
2. Revision of existing lifesaving equipment requirements, including lifeboats and liferafts, qualifications for personnel responsible for operating lifesaving equipment, communications systems, and access and escape routes.
3. Revision of operational requirements related to fire and abandonment drills, station bells, fueling, and other operational procedures.

A notice of proposed rulemaking is scheduled to be published during the summer of 1981.

CGD 80-161 Ocean Thermal Energy Conversion (OTEC) Facility and Plantship

The Ocean Thermal Energy Conversion Act of 1980 requires the issuance of certain regulations, some of which must be promulgated by August 1981. The overall regulatory input will come from three Coast Guard Offices: Merchant Marine Safety, Navigation, and Marine Environment and Systems. It is the intent of the Coast Guard to issue minimal regulations to ensure safety in this new commercial energy field. The initial notice of proposed rulemaking should be published in March 1981.

Subscription form for Coast Guard publications

"Rules and Regulations for Foreign Vessels Operating in the Navigable Waters of the United States" (CG-515) is a direct reprint of selected United States regulations appearing in Titles 33 and 46 of the Code of Federal Regulations relating to foreign vessel design, equipment, and operation. It is prepared as a convenience for the operators, agents, and owners of foreign-flag vessels which operate in U.S. waters. While this publication contains most of the Coast Guard regulations of general applicability to foreign vessels, it is not exhaustive and should not be construed as containing all Coast Guard regulations which affect foreign vessels. Specific regulations contained in 46 CFR Subchapter N relating to the carriage of dangerous cargoes are not included. Further, this publication does not contain any laws or statutes.

This publication is available to the public only through the subscription service of the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. The subscription cost includes automatic mailing of page changes.

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Sixth Annual Marine Safety Poster Contest

1st Prize GOLDEN SAFETY POSTER AWARD--To be presented at the 1981 National Safety Council Congress in Chicago, Illinois

2nd Prize SILVER SAFETY POSTER AWARD--To be awarded to employer's representative attending the above Congress for eventual presentation to the 2nd Prize Winner.

Sponsor's Award SPECIAL GOLDEN SAFETY AWARD--Plaque to employer of 1st Prize winner to be awarded to corporate representative attending the above Congress as a thank you for the corporation's cooperation and interest in furthering safety in the marine industry.

RULES

1. Contest open to any and all employees in the maritime industry who like to draw. All posters must be on a Marine Safety subject. Any maritime operation or situation afloat or ashore may be used.

2. Confine drawing to 7½" x 10" on standard 8½" x 11" white paper, using either **black or red ink only. Draw for vertical display only.** We print from your artwork. Bold letters and strong art counts as well as subject matter. Emphasize only one idea.

3. Sign your work. Submission automatically gives copyright to Executive Committee, Marine Section, National Safety Council, and entrant releases all rights thereto.

4. Employer's name and address, as well as entrant's name, address, and position, must be PRINTED and submitted with each entry.

5. All entries must be postmarked on or before midnight, June 30, 1981. As many entries may be submitted as desired.

6. Winners will be notified via employer as soon as possible after closing date.

7. Carefully read and comply with all the above rules, and mail your entries to:

   Chairman, Audio/Visual Aids and Posters Committee
   c/o Ships' Operational Safety, Inc.
   284 Main Street
   Port Washington Harbor, NY 11050

OFFICIAL JUDGES

Elizabeth V. Stephens, Chairman
Vice President
Ships' Operational Safety, Inc.

Capt. Robert E. Hart
President
Marine Index Bureau, Inc.

Mr. Ted Alff
Vice Chairman
Audio/Visual Aids and Posters Committee

Mr. C. Bradford Mitchell
Maritime Consultant

Third Annual Marine Safety Photography Contest

Golden Safety Photography Award will be awarded to the person who submits the winning 35mm color slide. The award will be presented at the 1981 National Safety Council Congress in Chicago, Illinois.

Sponsor's Golden Safety Award will be presented to employer of the winner in the color category in appreciation for the company's cooperation and interest in furthering marine safety.

Silver Safety Photography Award will be awarded to the person who submits the winning black and white photograph. The award will be presented at the 1981 National Safety Council Congress in Chicago, Illinois.

Sponsor's Silver Safety Award will be presented to a representative of the employer of the person submitting the winning black and white photograph in appreciation for the company's cooperation and interest in furthering marine safety training.

RULES

1. The photography contest is open to any and all employees in the maritime industry who are photography buffs, either amateur or professional. All photography entries must be on a Marine Safety subject. The content should show a positive or negative safety topic. Give your picture a safety title or safety slogan or state the safety topic briefly. Any maritime operation or situation afloat or ashore may be used.

2. Color Category: Only 35mm slides will be acceptable. Your entry will be judged for content, composition, originality, safety applicability, and pertinence.

3. Black and White Category: Glossy or matt prints 8" x10" or larger will be acceptable. Your entry will be judged for contrast, content, composition, originality, safety applicability, and pertinence.

4. Sign your entry. Photographs and slides will not be returned. Submission automatically gives copyrights to Executive Committee, Marine Section, National Safety Council, and entrant and sponsor release all rights thereto.

5. Employer's name and address, as well as entrant's name, address, and position, must be PRINTED and submitted with each entry.

6. All entries must be postmarked on or before midnight, June 30, 1981. As many entries as desired may be submitted in either the color or black and white category.

7. Winners will be notified via employer as soon as possible after closing date. The winners' names and the names of their companies will be published in the NSC, Marine Section Newsletter.

8. Carefully read and comply with all the above rules and mail your entries to:

   Chairman, Audio/Visual Aids and Posters Committee
   c/o Ships' Operational Safety, Inc.
   284 Main Street
   Port Washington Harbor, NY 11050

OFFICIAL JUDGES

Elizabeth V. Stephens, Chairman
Vice President
Ships' Operational Safety, Inc.

John Faulk, Vice Chairman
Safety Director
Strachan Shipping Co.

Allan Litty
President
Flying Camera, Inc.

Bob Ahrens
President
Bob Ahrens Productions, Inc.

Merchant Marine Personnel Statistics Fiscal Year 1980

Merchant Marine Officer Licenses Issued

Engineer

GRADE		ORIGINAL	RENEWAL
STEAM			
Chief Engineer:		128	1,055
Unlimited		7	61
Limited			
1st Assistant:		211	390
Unlimited		2	18
Limited			
2nd Assistant:		476	553
Unlimited		26	31
Limited			
3rd Assistant:		641	898
Unlimited		26	31
Limited			
	TOTAL	1,517	3,037
MOTOR			
Chief Engineer:			
Unlimited		176	298
Limited		43	236
1st Assistant:			
Unlimited		67	85
Limited		12	61
2nd Assistant:			
Unlimited		122	89
Limited		9	14
3rd Assistant:			
Unlimited		608	1,165
Limited		4	18
	TOTAL	1,041	1,966
Uninspected Vessels:			
Chief Engineer		298	175
Assistant		127	46
	TOTAL	425	221
	GRAND TOTAL		8,207

Merchant Marine Officer Licenses Issued

Deck

GRADE	ORIGINAL	RENEWAL
Master:		
Ocean	425	1,059
Coastwise	19	73
Great Lakes	28	78
Bays, sounds, and lakes	64	156
Rivers	39	138
Chief Mate:		
Ocean	258	284
Coastwise	19	9
Great Lakes	4	9
Bays, sounds, and lakes	46	41
Rivers	35	70
2nd Mate:		
Ocean	328	252
Coastwise	1	3
3rd Mate:		
Ocean	551	364
Coastwise	6	10
Pilots:		
Great Lakes	187	122
Bays, sounds, and lakes	361	308
Rivers	299	293
Master (uninspected vessels)	705	415
Mate (uninspected vessels)	196	49
Motorboat Operator	5,544	3,363
Radio Officer	57	269
TOTAL	9,172	7,365
GRAND TOTAL	16,537	

Original Certificate of Registry as Staff Officers Issued

	ATLANTIC COAST	GREAT LAKES REGION	PACIFIC COAST	GULF COAST	TOTAL
Chief Purser	8	8	0	0	16
Purser	2	3	12	1	18
Senior Assistant Purser	0	3	0	0	3
Junior Assistant Purser	14	51	0	3	68
Surgeon	0	19	0	0	19
Professional Nurse	3	4	1	1	9
Marine Physician	1	0	1	0	2
Radio Officer	8	2	4	0	14
Others	2	5	2	0	9
TOTAL	38	95	20	5	158

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Original Merchant Mariners Documents Issued

	ATLANTIC COAST	GREAT LAKES REGION	PACIFIC COAST	GULF COAST	TOTAL
1st—October - December	1,206	750	1,741	651	4,348
2nd—January - March	1,329	904	2,129	845	5,207
3rd—April - June	2,387	533	2,309	780	6,009
4th—July - September	1,447	1,012	1,940	705	5,104
TOTAL	6,369	3,199	8,119	2,981	20,668

Original and Additional Endorsements Issued

	ATLANTIC COAST	GREAT LAKES REGION	PACIFIC COAST	GULF COAST	TOTAL
AB—any waters, unlimited	328	185	298	108	919
AB--any waters, 12 months	489	203	364	100	1,156
AB—Great Lakes, 18 months	13	104	1	17	135
AB—other	90	122	762	12	986
Lifeboatman	875	317	460	39	1,691
Electrician	120	65	36	17	238
Oiler	406	202	126	83	817
Fireman / Water tender	389	126	102	73	690
Other Q.M.E.D. ratings	799	572	151	113	1,635
Tankerman	472	227	753	960	2,412
Entry Ratings and Steward's Department	8,741	5,611	6,783	2,036	23,171
TOTAL	12,722	7,734	9,836	3,558	33,850

Towboat Operators Licenses Issued

	CANDIDATES	PASSED
Operator	2,127	1,249
2nd Class Operator	552	414
Endorsements	312	267
TOTAL	2,991	1,930

TOTAL LICENSES INCLUDING RENEWALS: 26,674

Lessons from Casualties

The staff of the Outer Continental Shelf safety project has been reviewing offshore injury and death data to identify hazardous working conditions and possible corrective measures in the marine oil and gas industry. A review of some of the accidents reported indicates that human carelessness and failure to take simple precautions are frequently significant contributing factors to injuries and deaths. The following are 27 selected summaries of deaths occurring offshore that were reported to the Coast Guard between 1976 and 1980. Although the focus is on offshore drilling, many of these hazardous situations are common to other segments of the marine industry. The lessons to be learned are self-evident.

SUMMARIES OF SELECTED OFFSHORE FATALITIES (1976-1980)

1. Two industrial workers on a drillship opened a manhole on a crane column to ventilate the column. As the manhole cover was lifted free, a gasket fell through the opening to the bottom of the compartment. One of the workers entered the column to retrieve the gasket. Halfway down the ladder, he passed out and fell to the bottom of the compartment. The second industrial worker called for assistance from other personnel in the area. One of the other workers decided to attempt a rescue without waiting for a breathing apparatus, despite being warned not to do so. This third employee was about halfway down the ladder when he too collapsed and fell to the bottom of the compartment. Shortly afterward a diver with an airline hose entered the column and retrieved both men. Artificial respiration and cardiac massage were unsuccessful, and neither man revived.

2. Several crewmen aboard a semisubmersible drilling barge were installing anodes in the lower area of the forward starboard column. The toolpusher, the barge engineer, a welder, and a roustabout entered the chain locker in the column and began opening the bolted manhole on the bottom of the locker. A noticeable amount of vapor escaped when the first nut was removed. The other nuts were removed and the cover taken off. No tests were made of the atmosphere in the lower void, no ventilation was provided, and no type of protective breathing device was donned by the barge engineer before he descended into the area. He was heard to say, "Man, it stinks down here," just before collapsing. The toolpusher made his way down the ladder to render aid. As he attempted to hoist the barge engineer to his shoulders, he collapsed faceup on the bottom of the void. The crane operator donned a self-contained breathing apparatus and entered the void to aid the men. He was followed by an electrician who wore no breathing apparatus and who promptly collapsed. The crane operator went to the electrician's aid by holding an air hose near his face. Mouth-to-mouth resuscitation, cardiopulmonary resuscitation, and a breathing apparatus failed to revive the barge engineer and the toolpusher. The electrician was revived in the chain locker.

3. The blowout preventer hydraulic control pod (blue pod) on a drillship was raised two to three feet from its wedge seat to allow examination of pod seals which had leaked during a test. An air tugger line (#3) that led from the rig floor to the cellar deck was used to raise the pod. The pod could not be seen from the rig floor. After the pod was raised, the hand brake on the tugger winch was set; there was no tagout, however, nor was the line marked to show that it was connected to the blue pod being checked. While his partner went to get a cup of coffee, the worker checking the pod began to examine the inside seal surfaces, placing himself between the raised pod and the wedge-shaped seat. On the rig floor, meanwhile, another tugger line (#1) was being used to raise a crewman above the floor to check the choker line for leaks. This crewman finished his work and called to be let down. The assistant driller (a different individual from the one who had raised him) said, "I'll let him down," and slackened the #3 air tugger line. The 3000-pound blue pod immediately reseated, crushing to death the employee checking the seals.

4. To change from a water-based to an oil-based mud, a roughneck and an assistant were cleaning the caked mud from the inside of a mud pit on a platform rig. Prior to starting the operation, the rig electrician secured the start-stop switch for the agitator and opened the circuit breaker switch supplying power to all the switches in the mud check house. These were located 36 feet from the mud pits. He neither locked out nor tagged either switch. A third person for some unknown reason started the agitator while the two men were still in the pit. The roughneck died. His assistant was dragged out of the pit in a state of shock by rescuers.

5. Two riggers and the rigger foreman on a production platform in the Gulf of Mexico were moving an

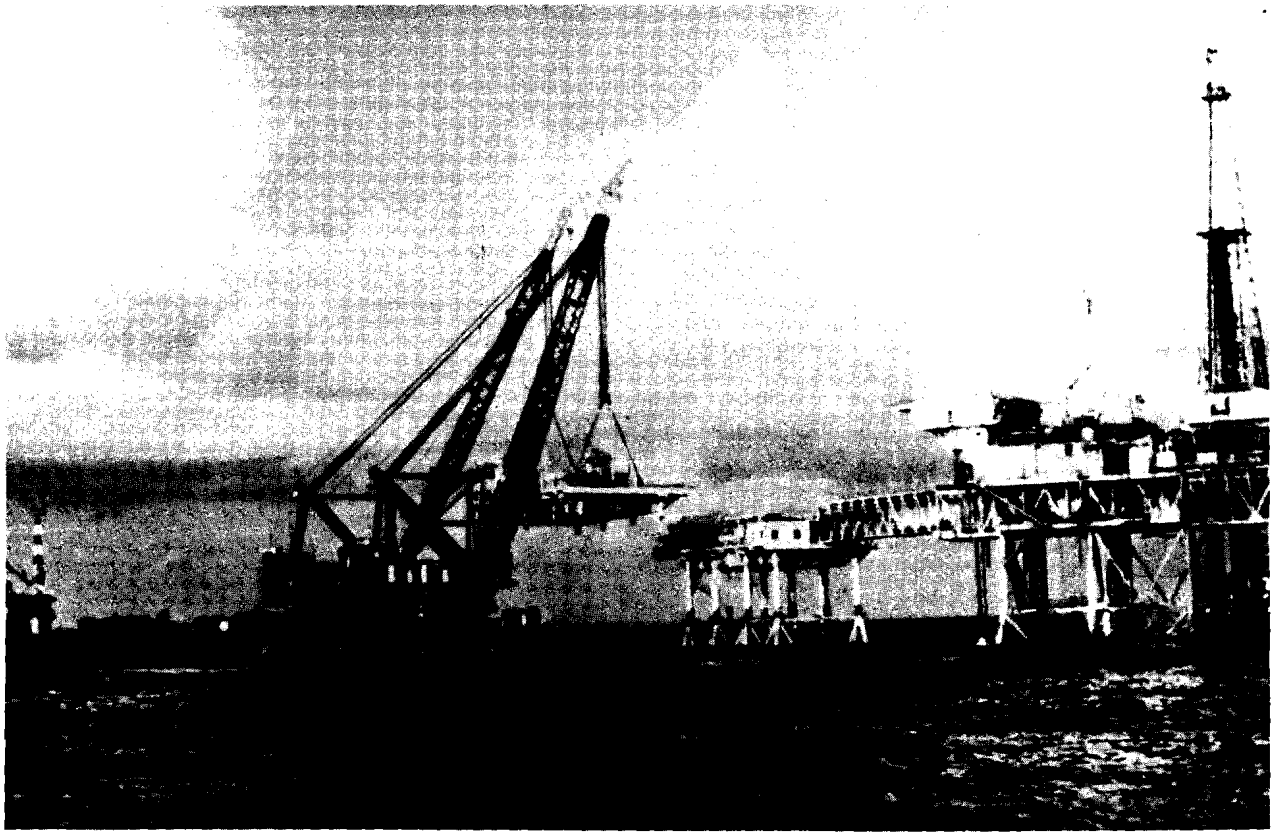
air tugger on the deck with a five-foot-long steel pry bar. After moving the air tugger, one of the riggers set the pry bar down on an energized extension cord that ran to an electric grinder in an adjacent compartment. The insulation was pierced, and the rigger was electrocuted. Efforts to revive him after he was pulled loose from the pry bar with a rubber hose were unsuccessful.

6. A crane operator on a drilling platform in the Gulf of Mexico was lifting a mud pump weighing 41,000 pounds from a barge to a location approximately 70 feet from the crane on the deck of the drilling platform. The crane did not have a rating chart posted. When the crane boom reached a position almost parallel to the deck (the pump was approximately 70 feet from the crane), the bearing unit connecting the frame of the crane to the pedestal and several bolts connecting the bearing unit to the frame sheared. The crane fell 15 feet to the deck with the operator inside. He was promptly evacuated to a local hospital, where he was pronounced dead. The load under which the bearing unit and bolts failed was in excess of the maximum working load suggested by the manufacturer for that angle and distance.

7. A roughneck and a welder had helped transfer a sick worker to a boat for transit to shore and were returning to their platform in a personnel basket. The crane operator had raised the basket on the fast line, boomed up somewhat, and was preparing to bring the men to the platform when the basket reached a point where he could not see it because of the sun. He lowered the fast line, and the sling on the load line caught the hook on the headache ball, dropping the basket with its occupants onto the workboat. The welder suffered a broken leg and a fractured jaw. The roughneck died of a fractured skull.

8. A crane operator on a platform in the Gulf of Mexico was lifting a 100-barrel mud tank from a supply boat to the platform. The tank was partially filled with water and weighed a total of 23,000 pounds. The tank was raised to the level of the top deck of the platform but could not clear the guard rail. The operator then began to lower the load. When it was about 30 feet above the water, the hook rollers on the crane gave way, and the tank and the crane with the operator still in the cab fell into the water. At the time of failure the crane radius was estimated at 21 feet. At that radius the rated lifting capacity of the crane was 14,200 pounds.

A derrick barge lifts a module onto the steel pile platform base of a platform under construction



9. While working on the blowout preventer, a roustabout on a mobile offshore drilling unit in the Gulf of Mexico climbed through the rotary table onto a trolley beam located under the rig floor. He was not wearing a safety belt or harness, although company safety policy required the use of safety belts by all personnel working aloft. After passing an air hoist line to another worker on the beam, the roustabout slid back along the beam and started to climb over a four-inch pipe welded to the top of the beam and up through the rotary table. He suddenly lost his balance, fell 60 feet to the deck, and bounced into the water. The assistant driller had earlier the same day warned the employee that climbing through the rotary table was dangerous and he might fall. The roustabout had responded that he wouldn't fall. His body was recovered the following day.

10. A derrickman on a platform in the Gulf of Mexico climbed to the crown of the derrick to perform routine maintenance and inspection. On his way back down he stopped at the railed walkway that ran around the derrick and removed his climbing belt. He then climbed down onto the first horizontal girder below the walkway, which was about 80 feet above the drill floor. He had no tools with him. He had begun to move toward the northwest corner of the derrick when he slipped and fell, striking the derrick framework and pipe rack before landing on the drill floor. He was dead on arrival at a hospital.

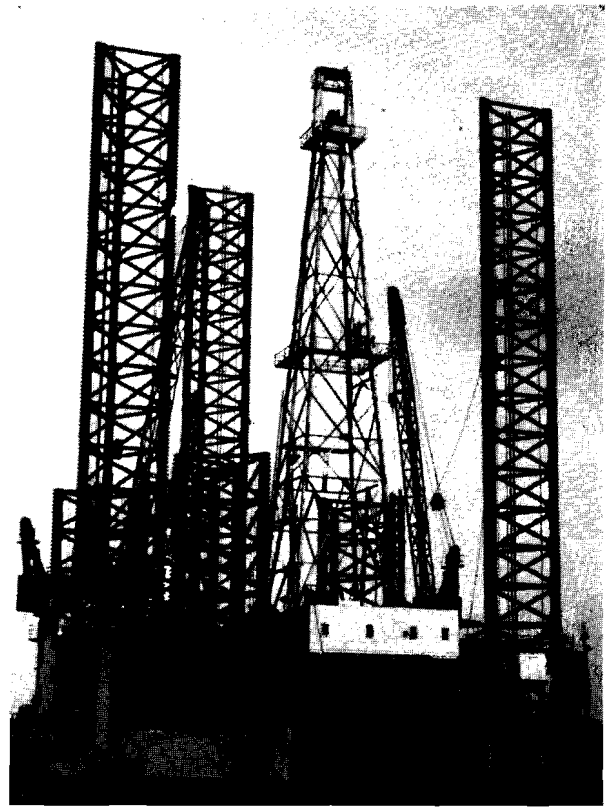
11. A floorman on a drilling platform was lacing a tarpaulin wind dodger over the peripheral handrail on the derrickman's platform, 66 feet above the drill floor. He was an experienced worker and had worked on the derrick on previous occasions. He was wearing a safety harness but left the safety line of the harness unattached while working on the catwalk. There were no witnesses to his actions on the catwalk; suddenly, however, hearing a lot of noise, another worker turned in time to see the floorman falling feetfirst through the manhole where the ladder came up to the derrick floor. He rolled in midair, landed on his head on the rig floor, and died a short time later.

12. A casing crew began preparations to run casing pipe. One member of the crew on the derrickman's platform was in the process of setting up tong lines. Another member of the crew, who noticed he was having some difficulty, went up to offer his help. Neither worker was wearing a safety harness. While walking toward the first employee to take a tong line, the second employee stepped through the 3- by 3-foot ladder opening and fell to his death on the platform below. The opening was not protected by any trap door, safety chain, rail, or guard.

13. A roustabout working on a column of a jack-up drilling rig under tow was riding down on an electric-powered hoist cable. The electric hoist stopped for unknown reasons. Rather than dangle at the end of the cable, the roustabout unfastened his safety belt and attempted to climb the ten feet up the greased hoist cable to the top of the column. He lost his grip on the cable and fell to his death on the deck 150 feet below.

14. A roustabout working on top of a diesel tank aboard a platform disappeared while running a two-inch fuel line from the tank to an engine. A co-worker saw his hard hat fall into the water and surmised he had fallen overboard. A search of the water near the platform proved fruitless. Then a crew member noticed that a piece of 1/4-inch-thick asbestos that had covered a 28-inch-wide open hatch on the top of the diesel tank was missing. Visual inspection of the tank turned up a glove and a metal cigarette case, and a probe found the roustabout's body at the bottom of the tank. The reason for removing the metal tank hatch cover and putting the asbestos in its place was never established.

The columns of this jack-up drilling rig are in a raised position, as they were when a worker fell from the column of a rig under tow



15. While checking the drive pipe level, an industrial worker on a drill barge in the Gulf of Mexico was standing on wooden scaffold boards that covered the area around the perimeter of the dummy rotary table. As the worker moved along the scaffold, a board either broke or dislodged, and the worker fell through. A safety net had been rigged below, but the worker fell through the net into the water. He was dead when recovered ten minutes later.

16. A roustabout was assigned to install U-bolt pipe hangers on a line underneath the northern side of a platform under construction in the Gulf of Mexico. While he was working from a scaffold which provided access to the piping, three other workers from the same company were replacing a piece of grating on a nearby crosswalk. The section of grating to be replaced was located about four feet south of a tubular support which obstructed the view of the crosswalk beyond. A section of grating 28 inches by 41 inches was removed from the crosswalk. One worker went to the platform crane to prepare for hoisting. The two other workers went to the standby boat to ready the replacement grate. No line or guard was placed near the gap in the walkway when the three workers left. One of the workers who had gone below then noticed something fall from the cellar deck into the water near the center area of the platform. Blood was observed in the water, and a few moments later the body of the roustabout assigned to install the U-bolt pipe hangers was recovered. He had apparently walked from the north end of the cellar deck along the north-south crosswalk. The tubular support member obstructed his view of the crosswalk beyond the member, and he apparently did not see the opening after he stepped around the obstruction.

Workers being transferred in a personnel basket wear work vests and stand on the outside of the basket

17. Welders on a new platform that was still being outfitted had cut a hole in the deck to allow passage below to where they were working. The opening had been properly roped off overnight. Upon resuming their work in the morning, the welders had removed the barrier and climbed down onto scaffolding below the deck. The owner of a safety products firm walked across the deck with a cup of coffee in his hand while making an inspection tour of the platform. He fell through the unguarded opening, striking a three-inch angle iron scaffold support and falling to his death in the Gulf of Mexico.

18. These observations come from a report on a blowout which killed eight individuals: numerous false alarms were set off about one week before the blowout. Knowing that repairs were being made to the system, some personnel on the platform became conditioned to ignore the alarm. Other personnel were unaware of problems with the alarms. "The alarm to abandon the rig was verbally passed to everyone in the living quarters. It is unfortunate that a number of individuals (seven) did not immediately respond to it. All of the seven men who were last seen alive in the living quarters . . . were in various stages of dressing or collecting personal belongings when the explosion destroyed the living quarters. Had they immediately heeded the verbal alarm to evacuate they would probably have survived the incident." Other individuals who evacuated immediately did survive. One of the individuals killed was last seen on the side of his bunk in the process of putting on his shoes. Two others were last seen in their rooms carrying on a conversation. The last words of another victim who was last seen in the shower were, "They're always wanting us to do something on our time off."

19. A roustabout assisting a crane operator in relocating a drill-water-loading hose was struck by the hose on the neck and shoulder after a 1 1/8-inch manila line lifting the hose parted. The blow knocked him

over a handrail 55 feet into the water. Other personnel on the rig saw him surface and threw him a life ring. He grabbed it and pulled himself into the buoy. Seas were running 10 feet, the air temperature was 37°, and the water temperature was 45°. When the man overboard alarm was sounded, the standby boat moved in to make the rescue and within a minute was alongside the man in the water. Once close to the man, those on the vessel saw that he was weak and could not help himself. A cargo net was put over the side and a boat hook used to pull the man to the net, but he was unable to climb it. Four crewmen from the vessel took turns going over the side into the net, but they were unable to lift the man up out of the water. An attempt to put a line around him failed, and an effort to launch the standby vessel's rubber rescue boat was also unsuccessful. A line running to the block used to raise and lower the boat was twisted and fouled the blocks. After about 15 minutes another supply boat began an approach in an attempt to assist. The propeller wash from this vessel pushed the man in the water away from the standby boat, and he slipped through the life ring and disappeared. The investigating officer took into account the fact that any rescue attempt was difficult, given the cold temperature and the rough seas, but still observed that the standby boat was not fully prepared for a rescue attempt. Crewmen were not properly attired for a rescue in the weather conditions in which they were operating, and their equipment (the rescue boat) was not ready for quick use.

20. The drill pipe needed to be pulled out of the hole on a jack-up drilling rig. The first four stands (sections of pipe joined together) were extracted with no difficulty. As the fifth stand was being raised, the traveling block made contact with the monkey board and began to lift it. The derrickman on the monkey board hollered to the drill floor and grabbed the derrick frame. As the traveling block rose past the monkey board and allowed it to drop back to its normal position, the four bolts which attached the monkey board to its casters broke. The board fell 86 feet to the drill floor, where it struck and killed a floor hand. Following the accident, safety chains were installed on the monkey board.

21. Two workers on a platform were welding braces to a 20-inch conductor pipe at a height of 12 feet above water. Three other welders were removing 8-by 1/2-inch triangular guides from the same pipe at the top deck level. Only one of the two welders below wore a hard hat, and neither wore the work vest required by written company policy. Both workers below were aware that men were working above them. One of the welders working at the top deck level was unable to hold on to a guide as it was removed. It fell through a 10-inch-wide clearance around the conductor pipe and struck one of the welders below (the one not wearing a hard hat) on the head. He fell over backwards into the water. An autopsy attributed death to drowning.

22. A roustabout was helping transfer supplies from a workboat to a drill rig. He and another worker had just finished securing three 7 3/4-inch steel drill collars to the crane cable. Anticipating that the load would be hoisted, one worker moved away toward the bow of the workboat. The other walked toward the stern. As the load rose, the one who had started toward the stern suddenly turned and started toward the bow. The load moved toward him, struck him in the chest, and pinned him up against the starboard bulwark of the vessel. He collapsed and died without uttering a sound. Prior to the accident, the roustabout who was killed had been working at various tasks without benefit of rest for 23 hours.

23. A crane operator on a drillship was transferring drums of lube oil from a supply vessel to the drillship in a cargo net. The net was being unloaded next to two six-foot-high piles of riser buoyancy sections.

Workers use tongs and a spinning chain to move sections of pipe

Each section weighed about 1000 pounds. Wind was 15 knots sustained velocity; seas were 5 feet. As the empty net was being hoisted, a hook caught on the chain securing the riser buoyancy material, causing both stacks to loosen and the forward stack to shift position. The supervisor ordered a deckhand to resecure the stacks before the lube oil transfer continued. The deckhand secured the aft stack. Before he got to the forward stack, however, the vessel rolled, and the forward stack shifted again. At the time it shifted, the crane operator was walking past, moving from the #2 to the #3 crane so he could reset the forward stack. The shifting stack pinned him against an adjacent fire hose box, crushing him. He later died from his injuries.

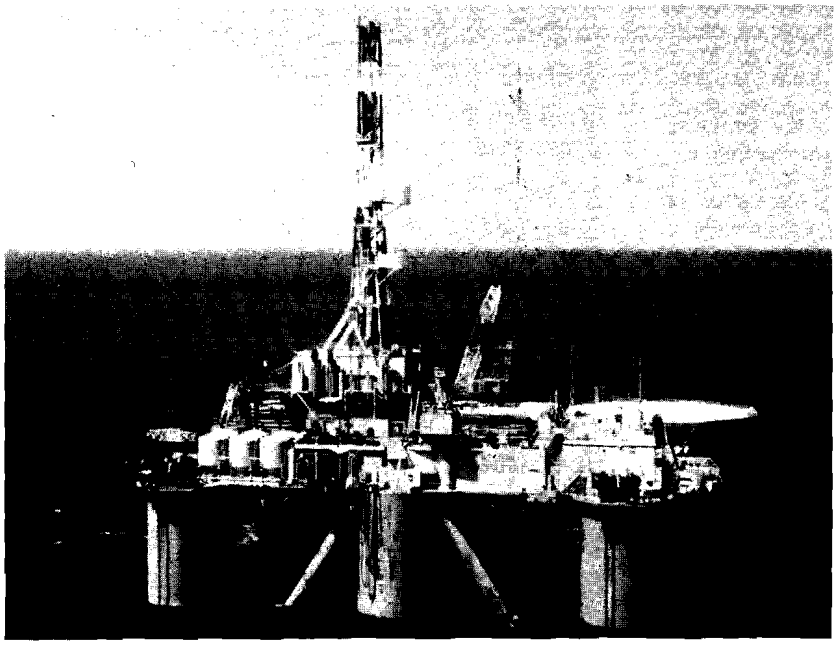
24. While transferring on a swing rope from a platform to a tending vessel, a piledriver man fell into the water. The man, a non-swimmer, was wearing no PFD when he lost his grip on the rope. Other workers recovered him from the water, but his breathing was irregular and he did not regain consciousness. He was dead on arrival at a hospital.

25. Drill collars were being offloaded from a drilling barge onto a pipe barge when the stretch bar failed and the collars fell to the deck. The resulting noise frightened the crew handling the collars, and they jumped overboard. None were wearing work vests. One of the three, a roustabout, drowned in eight feet of water.

26. A barge's cook, his helper, and the master of a motor vessel moored to a submersible drilling barge sat drinking beer and liquor one evening aboard the M/V in violation of company policy. At about 10:00 p.m., the cook returned to the barge to retire for the night. Ten minutes later the cook's helper and the master decided to move the boat around to the lee side of the barge. The master started his engines and looked aft to make sure his stern was clear of the barge. What he saw was the cook floating off his starboard quarter. His mutilated body was recovered 45 minutes later. Witnesses on previous occasions had observed the cook relieving himself over the side of the barge close to where the M/V was moored. This was near a mess dumbwaiter used to carry trash from the galley, and cooking oil and grease had accumulated there in a light film on the deck.

27. A roustabout on a platform was assigned to unload groceries from a grocery basket suspended from a crane. A drill rig was being assembled on the platform, and because of this the grocery basket could not be placed on its normal staging area on the platform. Instead, the basket was suspended over the water alongside the platform. To unload the basket, the roustabout had to lean over a catwalk railing and place his upper torso inside the basket. While he was in this position, the crane operator, thinking the crane locking mechanism was engaged, removed his foot from the brake. The basket dropped about five feet, catching the roustabout's head and shoulders between the top of the basket and the handrail. He died of a fractured trachea. Company policy stated that workers should never "work, stand or walk" under a suspended load.

A semisubmersible rig floats on location



Safety on the Seas

Editor's note: The following films are but a sample of the many safety-related films, books, and magazines available to mariners. Reader response would be much appreciated. If there is enough interest on the part of the readers, lists similar to the one below can be featured on a recurring basis.

The U.S. Coast Guard films described here can be obtained from the offices listed following the films. Please give the complete name of the film when ordering. Requests should be made to the nearest office at least one month in advance of show date. There is no rental charge for use of the films, but return shipping costs must be paid by the user. All films are 16mm sound and cannot be run on silent projectors.

1. AMVER—LIFESAVING COMPUTER OF THE SEAS—color, 13½ minutes, released in 1972.

   A fast moving description of AMVER (Automated Mutual-assistance Vessel Rescue system), showing how it works as an aid to the development and coordination of search and rescue efforts at sea. The system is shown in action as its computer provides vessel position and medical capability information for use in three different disaster cases: two ships and a transoceanic aircraft. (CGMP 15-72)

2. FIREFIGHTING ABOARD TANKERS—color, 28 minutes, released in 1961.

   Designed as a training film for all concerned with tanker operations. This film is primarily for Coast Guard use but should provide valuable information for training tanker crews in the techniques and methods of handling equipment for firefighting aboard ship, at sea, or alongside a pier. Contains firefighting demonstrations including proper use of various types of equipment. Prevention methods are shown, as is protection against reflash after a fire is extinguished. Covers use of chemicals and foam, as well as water. (CGMP 2-61)

3. ICE—color, 11 minutes, released in 1970.

   Portrays ice as one of man's oldest challenges and describes Coast Guard acceptance and response to the challenge. Shows the Service over the last 100 years in the vanguard of polar operation and development, carrying out the International Ice Patrol in the North Atlantic shipping lanes and assisting movement of waterborne commerce in domestic waterways. (CGMP 11-67)

4. STORY OF THE GREAT RIVERS—color, 28 minutes, released in 1961.

   Shows, with animated maps and live footage, the early days of the Mississippi, Missouri, and Ohio rivers, the advent of the Coast Guard on those rivers, and the Coast Guard's duties, continuing up to the present time. Aids-to-navigation, search and rescue, port security, and flood operations are shown in considerable detail. The Coast Guard's first river duties, such as boiler inspections, are related to similar duties today. Inspection of pleasure craft is shown. Duties of the U.S. Army Corps of Engineers in controlling the rivers are included. (CGMP 2-59)

5. ESSO BRUSSELS—SEA WITCH—color, 25 minutes, released in 1976.

   Provides a complete look at events surrounding the collision off Staten Island between cargo chip CV SEA WITCH and Belgian tanker ESSO BRUSSELS. Describes the work of the Coast Guard and municipal authorities of New York attempting to control this disaster, as well as steps taken to prevent an accident of this magnitude from happening again.

Boating Safety Films

6. THE AUXILIARY STORY—color, 13 minutes, 50 seconds, released in 1971.

   Informative presentation of the story of the U.S. Coast Guard Auxiliary: its missions, origin, history, organization, and accomplishments. Emphasis is on current and projected activities promoting boating safety.

7. A DAY WITH ANNABELLE—color, 26 minutes, released in 1971.

   Depicts real-life situations along inland waterways as illustrated by the boat ANNABELLE. Safe boating, Rules of the Road, docking, fire prevention, life jackets, anchoring, weather, and buoy identification are the main topics discussed. This film was produced in cooperation with the USCG, the CG Auxiliary, the U.S. Power Squadron, and the American National Red Cross. (A Michelob Sea promotion)

8. ANOTHER DAY OF CRUISING—color, 28 minutes, released in 1975.

   Features two groups of people and their adventures on the water. One family, which owns and operates a small cabin cruiser, has just completed a CG Auxiliary Course and talks about equipment and general safety precautions. The second group is made up of students who bor-

rowed an outboard boat from a friend and are just having fun. Outboard safety precautions and equipment carriage are pointed out. Subjects talked about are: ventilation, the CG Auxiliary, equipment carriage, fueling permanent tanks, fueling portable tanks, Rules of the Road, ramp courtesy, weather, and skiing.

9. BOATING SAFETY AND RESCUES—color, 10 minutes, 15 seconds, released in 1974.

   Basics in boating safety and rescue. Geared for use with water safety and small craft classes. Subjects covered incude: boarding canoes and small boats, equipment carriage and capacity plates for small boats, and boat rescue techniques for people in the water.

10. CAPSIZING, SINKING, AND FALLS OVERBOARD—color, 14 minutes, released in 1968.

    Explains stability. Examples are used to relate stability to situations illustrating capsizing, sinking, and falls overboard.

11. COURTESY AFLOAT—color, 20 minutes, released in 1970.

    Film designed for use by all boatmen, particularly those who operate boats less than 26 feet long. Equipment carriage, fueling, water-skiing, weather, and safe boat operation are discussed.

12. DON'T ROCK THE BOAT—color, 28½ minutes, released in 1974.

    Shows viewer "right" and "wrong" approach to many boating situations from the caveman era to the present day.

13. FARE WELL—color, 13 minutes, released in 1973.

    Animated cartoon. Safety tips and guidance on boat maintenance, operation, courtesy afloat, and burglar protection.

14. NOT BY A DAM SITE—color, 14½ minutes, released in 1974.

    Describes boating hazards adjacent to navigation and flood control locks, dam, and powerhouse structures. Shows results of tests conducted in various areas around lock and dam structures and emphasizes need for safety while boating in these areas. (U.S. Army Corps of Engineers Film)

15. PEOPLE AFLOAT—color, 14 minutes, released in 1965.

    Emphasizes importance of having a well-equipped boat and knowing how to use a boat properly. (American National Red Cross)

16. RIVER OF RETURN—color, 14½ minutes, released in 1974.

    Describes safe practices and procedures for operating motorboats on a navigable river where the boater is required to lock through corps of engineers lock structures and share river with commercial barge traffic. (U.S. Corps of Engineers)

17. SCORE OFF SHORE—color, 21 minutes, released in 1974.

    Federal requirements for recreational boats.

18. SKIPPER SKILLS—color, 23 minutes, released in 1976.

    Explains the "do's" and "don't's" of power boating and sailing. Equipment carriage, Rules of the Road, trailoring, fueling, and some very good "common sense" facts about boating are covered. (Booths High & Dry Gin Film)

19. WHAT NOW SKIPPER—color, 20 minutes, released in 1972.

    Depicts recommended procedures for selecting, maintaining, and using marine fire extinguishers. Film is intended for use in familiarizing the boating public with federal requirements for carrying fire extinguishers and proper use on a recreational boat.

20. NATIONAL BOATING TEST—color, 26 minutes, released in 1970.

    Guides viewer through a series of 20 boating safety situations, presenting various alternative solutions. The viewer has to decide the right thing to do, then grade himself on his results. (Johnson Motors Film)

ADDRESSES OF COAST GUARD FILM LIBRARIES

COMMANDER (dpa)

First Coast Guard District
150 Causeway Street
Boston, MA 02114

Second Coast Guard District
Federal Building
1430 Olive Street
St. Louis, MO 63103

Third Coast Guard District
Governors Island
New York, NY 10004

Fifth Coast Guard District
Federal Building
431 Crawford Street
Portsmouth, VA 23705

Seventh Coast Guard District
Federal Building
51 S.W. 1st Avenue
Miami, FL 33130

Eighth Coast Guard District
Hale Boggs
Federal Building
500 Camp Street
New Orleans, LA 70130

Ninth Coast Guard District
1240 East 9th Street
Cleveland, OH 44199

Eleventh Coast Guard District
Union Bank Building
400 Oceangate Boulevard
Long Beach, CA 90822

Twelfth Coast Guard District
630 Sansome Street
San Francisco, Ca 94126

Thirteenth Coast Guard District
Federal Building
917 Second Avenue
Seattle, WA 98174

Fourteenth Coast Guard District
Prince Kalanianaole Federal Building
300 Ala Moana Boulevard, 9th floor
Honolulu, HI 96850

Seventeenth Coast Guard District
P.O. Box 3-5000
Juneau, AK 99802

FOR METROPOLITAN D.C. AREA:

Commandant (G-BPA-1)
U.S. Coast Guard
Washington, DC 20593

Ship Structure Committee Publishes Six Reports in 1980

The Ship Structure Committee, the interagency committee which sponsors research to improve the hull structures of ships and other marine structures by disseminating knowledge pertaining to design, materials and methods of construction, published six new reports during 1980. The committee has been in existence since 1946, when it was formed to investigate the structural failures of the Liberty ships. It has published nearly 300 technical reports on a variety of subjects since that time. The member organizations, in addition to the U.S. Coast Guard, are the U.S. Navy, the Maritime Administration, the Military Sealift Command, the American Bureau of Shipping, and the U.S. Geological Survey.

The reports issued in 1980 were:

SSC-294	Further Survey of Inservice Performance of Structural Details by C. R. Jordan and L. T. Knight.
SSC-295	Nondestructive Inspection of Longitudinal Stiffener Butt Welds in Commercial Vessels by R. A. Youshaw.
SSC-296	Review of Fillet Weld Strength Parameters for Shipbuilding by C-L Tsai, , K. Itoga, A.P. Malliris, W. C. McCabe, and K. Masubuchi.
SSC-297	Evaluation of Liquid Dynamic Loads in Slack LNG Cargo Tanks by P. A. Cox, E. B. Bowles, and R. L. Bass.
SSC-298	Investigation of Steels for Improved Weldability in Ship Construction—Phase I by R. W. Vanderbeck.
SSC-299	Ultimate Strength of a Ship's Hull Girder in Plastic and Buckling Modes by A. E. Mansour and A. Thayamballi.

For copies of these reports or an index of earlier reports, contact the Secretary, Ship Structure Committee, Office of Merchant Marine Safety (G-M/TP13), U.S. Coast Guard Headquarters, Washington, DC 20593.

SULFURIC ACID H_2SO_4

Synonyms:	battery acid, chamber acid, fertilizer acid, oil of vitriol
Physical Properties*	
decomposition point:	340° C (644° F)
boiling point:	from 102° C (215° F) to 350° C (650° F)
freezing point:	fluctuates between -75° C (-103° F) and 9° C (+48° F)
vapor pressure at 46° C (115°);	negligible
Threshold Limit Values	
time weighted average:	1 mg/m^3
short term exposure limit:	none established
Density*	
liquid:	1.56 - 1.84
Identifiers	
U.N. Number:	1830
CHRIS Code:	SFA

*The values for these properties depend on the concentration of the sulfuric acid, which can range from the very dilute to the very strong.

Production of sulfuric acid outstrips that of any other chemical in the United States. It is not too extreme to say that sulfuric acid is used in almost every industry; indeed, the production figures are often used as an indicator of economic activity. Sulfuric acid is highly corrosive to both living and non-living things. It is shipped in various concentrations, and the corrosiveness is a complex function of concentration, rising, then falling, then rising again, as the concentration increases. Even small amounts, at low concentrations, can cause wounds and leave serious scarring. Because the acid is so corrosive, the Threshold Limit Value-Time Weighted Average has been set at only one milligram per cubic meter. At room temperature there is little evaporation of sulfuric acid into the atmosphere. Although sulfuric acid is nonflammable, it is an oxidizer (i.e., chemically highly reactive) and can cause combustibles to ignite. Mixing water and acid generates great quantities of heat. Since water acts as a heat sink or cooling agent, adding acid to water (as opposed to adding water to acid) minimizes the generation of steam—and, thus, the formation of aerosols (droplets so tiny that they can remain suspended in air).

Sulfuric acid may have been known as early as the tenth century A.D. By the fifteenth century it was being produced on a small scale by burning sulfur in moist air. Today, most is produced by burning sulfur to form sulfur dioxide, which is then catalytically converted to sulfur trioxide. The sulfur trioxide is bubbled through sulfuric acid to produce a more concentrated solution of the acid. This is then diluted to its original concentration and the new product drawn off. Continuing to add sulfur trioxide to pure, 100 percent acid produces oleum, or fuming sulfuric acid. No naturally produced sulfuric acid exists on earth, but the atmosphere of Venus contains large quantities. Air pollution caused by the burning of sulfur-containing oil and coal is a major problem; acid rain is essentially dilute sulfuric acid.

The uses of sulfuric acid are as diverse as the quantities consumed in manufacturing are large. Its primary use is in the making of phosphate and superphosphate fertilizers, but it is also used in making other acids, alcohols, dyes, aluminum sulfate, titanium dioxide, rayon, detergents, metals, and petroleum products.

Since it is a liquid, sulfuric acid can be shipped at normal temperature and pressure. Sulfuric acid is carried in ships, barges, tank cars, and tank trucks. It is regulated by the Coast Guard as a corrosive liquid (oleum is a cargo of particular hazard), by the Environmental Protection Agency as a Category C pollutant, and by the Inter-Governmental Maritime Consultative Organization (IMCO) as an acid.

The Coast Guard recently completed a series of small-scale tests involving spills of sulfuric acid and oleum onto water. Fortunately, acid aerosols do not form when that occurs, so the air pollution hazard is small.

ALAN L. SCHNEIDER, Sc. D., and CURTIS PAYNE, B.A.
HAZARD EVALUATION BRANCH
CARGO AND HAZARDOUS MATERIALS DIVISION

Marine Safety Council Membership

Rear Admiral Harold W. Parker, Jr., Chief of Boating, Public, and Consumer Affairs, was born on October 14, 1928, in Juneau, Alaska. The son of a Coast Guard officer, he attended schools in various places until graduating from Balboa High School, San Francisco, California, in January 1946.

On June 2, 1950, he graduated from the U.S. Coast Guard Academy in New London, Connecticut, with a Bachelor of Science Degree in Engineering and was commissioned an ensign.

Following his first assignment as Communications Officer onboard the Coast Guard cutter USCGC ESCANABA based at Alameda, California, he served a tour of duty as Executive Officer of the San Francisco-based tender USCGC WILLOW. In December 1952 he was assigned as Operations Officer onboard the USCGC MATAGORDA operating out of Boston, Massachusetts, on ocean station patrol and search and rescue.

From April 1954 to May 1955, he commanded the Coast Guard LORAN Transmitting Station on Iwo Jima in the Pacific. He next served for more than three years as Controller of the Rescue Coordination Center, Office of the Commander, Eastern Area, New York. He was on watch at that post in July 1956 when the collision occurred between the Italian Liner ANDREA DORIA and the Swedish Liner STOCKHOLM, and he coordinated the rescue operations that followed. For those efforts the Italian Government awarded him the medal Almerita Della Republica D'Italia (Cavalier in the Order of Merit to the Republic of Italy).

From October 1958 to November 1961, he commanded the tender USCGC MISTLETOE operating out of Portsmouth, Virginia. He served his next tour of duty as Director of the Auxiliary, Second Coast Guard District, St. Louis, Missouri. From August 1965 to June 1967, he commanded the tender USCGC HEATHER based at San Pedro, California. This was followed by three years of duty as Chief, Personnel Division, at the Eleventh Coast Guard District office at Long Beach. While in the latter post he was awarded the Coast Guard Commendation Medal for furthering the Civil Rights Program in the district. From August 1970 to February 1972, he commanded the USCGC PONTCHARTRAIN operating out of Long Beach on ocean station patrol and search and rescue.

In March 1972 he reported to Coast Guard Headquarters, Washington, DC, for duty as Chief Director of the Coast Guard Auxiliary.

After serving in at San Juan, Puerto Rico, as Commander, Greater Antilles Section, and Commanding Officer of the Coast Guard Base, San Juan, from June 1974 to June 1976, he returned to Long Beach to become Chief of Staff, Eleventh Coast Guard District. Captain Parker was among six captains nominated by the President for the rank of Rear Admiral on January 27, 1978. Subsequently, he began his assignment as flag officer in the post of Commander, Eleventh Coast Guard District, Long Beach, California.

Rear Admiral Parker left Long Beach to assume the duties of Chief of the new Office of Boating, Public, and Consumer Affairs in June 1980.

He is married to the former Alice Dolores Mahoney of Staten Island, New York, and they reside in Potomac, Maryland.

Nautical Queries

The following items are examples of questions included in the Third Mate through Master examinations and the Third Assistant Engineer through Chief Engineer examinations.

DECK

(1) Where must copies be posted of the placard (Form CG-811) which contains instructions for the use of breeches buoys and the life-saving signals?

A. Pilothouse and on the bulkhead near each lifeboat station
B. In conspicuous places which are regularly accessible to the crew and passengers
C. Pilothouse and flying bridge
D. Pilothouse, engineroom, and crew quarters

REFERENCE: 46 CFR 97.43-5, 46 CFR 35.12-5

(2) Vessels on an international voyage shall have efficient guard rails or bulwarks on decks or bridges. The height of the rails or bulwarks measured from the deck shall be at least

A. 36½ inches.
B. 39½ inches.
C. 42½ inches.
D. 46½ inches.

REFERENCE: 46 CFR 92.25-5

(3) Which of the following portable fire extinguishers is classified as a type B-III extinguisher?

A. 12-gallon soda acid
B. 20-gallon foam
C. 30-pound carbon dioxide
D. 20-pound dry chemical

REFERENCE: 46 CFR 34.50-5(c)

(4) Deck foam systems designed to protect cargo areas on tank vessels built after January 1, 1975, must have a supply of foam-producing material to operate the system at its designed rate of foam production for

A. 15 minutes without recharging.
B. 20 minutes without recharging.
C. 25 minutes without recharging.
D. 30 minutes without recharging.

REFERENCE: 46 CFR 34.20-5

(5) Ocean-going bulk cargo vessels other than bulk liquid vessels greater than 1,000 gross tons must have approved combination-type fire nozzles at all

A. fire stations aboard the vessel.
B. interior fire stations.
C. fire stations near a space with flammable liquids.
D. engine room fire stations.

REFERENCE: 46 CFR 95.10-10

ENGINEER

(1) The operation of a thermostatic steam trap depends upon the

A. thermal expansion of fluid.
B. position of a float.
C. tendency of hot water to flash into steam.
D. flow characteristics of a liquid through an orifice.

REFERENCE: Osbourne

(2) If ice forms in the thermal expansion valve of an R-12 system, you can obtain flow in the system by warming the valve. One of the next things you would do would be to

A. manually start the compressor oil heaters.
B. activate the hot gas defrost system.
C. close the dehydrator bypass valve and direct refrigerant through the dehydrator.
D. throttle cooling water flow through the condenser.

REFERENCE: Modern Refrigeration and Air Conditioning

(3) According to Coast Guard Regulations (46 CFR Part 111), what would be an acceptable lining for battery trays containing nickel-cadmium batteries?

A. Brass
B. Lead
C. Steel
D. Zinc

REFERENCE: Hubert, 46 CFR 111.15-15(a)

(4) In refrigeration practice the term "oil foaming" is used to describe the

A. release of dissolved lubricant from the refrigerant in the crankcase.
B. release of miscible refrigerant from the lubricant in the crankcase.
C. sudden evaporation of entrapped air from the refrigerant liquid.
D. sudden evaporation of entrapped moisture from the lubricant.

REFERENCE: Althouse

(5) A boiler brought from full load to partial load will always require

A. larger burner sprayer plates.
B. an increase in excess air.
C. a decrease in the number of operating burners.
D. a smaller burner diffuser.

REFERENCE: B & W Steam

ANSWERS

DECK
1.D;2.B;3.D;4.B;5.D
ENGINEER
1.A;2.C;3.C;4.B;5.B

MERCHANT MARINE SAFETY PUBLICATIONS

The majority of the publications listed below may be obtained from the nearest marine safety office or marine inspection office or by writing: **Commandant (G-CMA/TP26), U.S. Coast Guard, Washington, D.C. 20593.** CG-388 and CG-515 are available from the **Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.** The cost of CG-388 is $4.25 (when ordering specify Stock Number 050-012-00117-1). The cost of CG-515 is $21.00 for domestic subscriptions and $26.25 for foreign subscriptions. The price of CG-515 includes the automatic mailing of page changes.

Certain publications listed below are reprints of various sections of the Code of Federal Regulations. Because changes to the rules and regulations are made from time to time, these publications can be kept current between revisions only by referring to the Federal Register. (Official changes to all Coast Guard-authored federal regulations are published as final rules in the Federal Register on Mondays or Thursdays.) Following the title of each publication in the table below are the dates of the most recent editions and changes, if any.

The Federal Register may be obtained by subscription ($75 per year) or by individual copy ($1 each) from the **Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.**

	CG No.	TITLE OF PUBLICATION

NOTE: This is a newly revised list; please check carefully for changes.

	CG-101-1	Specimen Examinations for Merchant Marine Deck Officers (2nd and 3rd Mate) (4-1-77).
	CG-101-2	Specimen Examinations for Merchant Marine Deck Officers (Master and Chief Mate) (7-1-78).
	CG-108	Rules and Regulations for Military Explosives and Hazardous Munitions (4-1-72). FR 7-21-72, 12-1-72, 6-18-75, 9-26-77, 5-12-80.
*	CG-115	Marine Engineering Regulations (8-1-77). FR 9-26-77, 10-10-78, 11-16-78, 12-4-78, 3-12-79, 5-3-79, 2-19-80, 4-21-80, 9-29-80, 8-7-80, 9-18-80.
	CG-123	Rules and Regulations for Tank Vessels (8-1-77). Ch-1, 4-78. FR 1-3-77, 8-18-77, 9-12-77, 9-26-77, 9-29-77, 1-11-79, 3-12-79, 5-3-79, 6-14-79, 7-2-79, 11-19-79, 12-27-79, 1-31-80, 3-3-80, 4-3-80, 4-7-80, 4-10-80, 4-14-80, 5-5-80, 5-30-80, 8-7-80, 9-29-80, 11-24-80, 12-15-80, 3-20-80.
	CG-169	Navigation Rules - International - Inland (5-1-77). FR 7-11-77, 7-14-77, 9-26-77, 10-12-77, 11-3-77, 12-6-77, 12-15-77, 3-16-78, 6-14-79.
	CG-169-1	Colregs Demarcation Lines (7-15-77). FR 12-3-79, 3-10-80.
*	CG-172	Rules of the Road - Great Lakes (7-1-72). FR 10-6-72, 11-4-72, 1-16-73, 1-29-73, 5-8-73, 3-29-74, 6-3-74, 11-27-74, 4-16-75, 4-28-75, 10-22-75, 2-5-76, 1-13-77, 11-3-77, 12-6-77.
	CG-174	Manual for the Safe Handling of Flammable and Combustible Liquids and Other Hazardous Products (9-1-76).
*	CG-175	Manual for Lifeboatmen, Able Seamen, and Qualified Members of the Engine Department (3-1-73).
	CG-176	Load Line Regulations (2-1-71). FR 10-1-71, 5-10-73, 7-10-74, 10-14-75, 12-8-75, 1-8-76, 7-24-78, 8-28-80.
	CG-182-1	Specimen Examinations for Merchant Marine Engineers License (2nd and 3rd Assistant) (4-75).
	CG-182-2	Specimen Examinations for Merchant Marine Engineer Licenses; First Assistant Engineer, Steam and Motor, any Horsepower (4-76).
	CG-182-3	Specimen Examinations for Merchant Marine Engineer Licenses; Chief Engineer Steam and Motor, any Horsepower (4-76).
	CG-182-4	Specimen Examinations for Uninspected Motor Vessel Engineer Licenses (Chief Engineer and Assistant Engineer).
*	CG-184	Rules of the Road--Western Rivers (8-1-72). FR 9-12-72, 12-28-72, 3-8-74, 3-29-74, 6-3-74, 11-27-74, 4-16-75, 4-28-75, 10-22-75, 2-5-76, 3-1-76, 6-10-76, 7-11-77, 12-6-77, 12-15-77.
	CG-191	Rules and Regulations for Licensing and Certificating of Merchant Marine Personnel (11-1-76). FR 3-3-77, 5-16-77, 8-8-77, 4-9-79, 12-6-79, 10-20-80.
	CG-227	Laws Governing Marine Inspection (7-1-75).
*	CG-257	Rules and Regulations for Cargo and Miscellaneous Vessels (9-1-77). Ch-1, 3-17-78. FR 1-31-77, 9-26-77, 9-29-77, 12-19-77, 10-10-78, 1-11-79, 3-12-79, 5-3-79, 6-14-79, 7-2-79, 4-10-80, 5-5-80, 9-29-80, 10-20-80, 11-24-80, 4-3-80.
	CG-258	Rules and Regulations for Uninspected Vessels (4-77). FR 9-26-77, 9-29-77, 6-14-79, 7-2-79, 12-17-79, 2-4-80, 2-19-80, 11-24-80.
	CG-259	Electrical Engineering Regulations (7-1-77). FR 9-26-77, 10-10-78, 11-16-78, 12-4-78.
	CG-268	Rules and Regulations for Manning of Vessels (7-1-77). FR 11-19-79, 10-20-80.
	CG-293	Miscellaneous Electrical Equipment List (6-73).
	CG-323	Rules and Regulations for Small Passenger Vessels (7-1-77). Ch-1 3-17-78. FR 9-26-77, 10-25-77, 12-15-77, 7-17-78, 3-12-79, 6-14-79, 7-2-79, 12-13-79, 2-19-80, 3-3-80, 9-29-80, 10-20-80, 11-24-80.
	CG-329	Fire Fighting Manual for Tank Vessels (1-1-74).
	CG-388	Chemical Data Guide for Bulk Shipment by Water (1976).
	CG-403	Great Lakes Pilotage Regulations (7-76).
	CG-439	Bridge to Bridge Radiotelephone Communications (12-1-72). FR 12-28-72, 3-8-74, 5-5-75, 7-11-77.
	CG-467	Specimen Examinations for Uninspected Towing Vessel Operators (10-1-74).
	CG-515	Rules and Regulations for Foreign Vessels Operating in the Navigable Waters of the U.S. (12-1-77). Ch-1 5-7-80. FR 4-10-80, 4-14-80, 5-5-80, 5-8-80, 5-19-80, 5-22-80, 6-26-80, 6-30-80, 7-17-80, 7-21-80, 8-7-80, 8-11-80, 8-14-80, 8-18-80, 8-28-80, 9-29-80, 10-16-80, 10-20-80, 10-23-80, 10-30-80, 11-24-80, 11-28-80, 12-15-80, 12-22-80, 12-29-80.
	CG-526	Utilizing the Packaged Hazardous Materials Regulations, 49 CFR (5-78).
	M16714.3	(Old CG-190) Equipment Lists, Items Approved, Certified or Accepted under Marine Inspection and Navigation Laws (8-1-79).
	M16752.2	(Old CG-497) Rules and Regulations for Recreational Boating (12-78) FR 7-19-79.

* Under revision

U. S. GOVERNMENT PRINTING OFFICE : 1981 O - 337-554