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Sick or injured seamen must often be evacuated by helicopter. If a vessel's crew is not familiar with airlift operations, precious time can be taken up with explanations. The crewmen on the cover are taking part in a film being produced to familiarize U.S. merchant seamen with air-rescue techniques. *"Could Your Crew Handle a Medevac?" begins on page 124.*

Port and Tanker Safety Act of 1978 Requirements Take Effect

Many of the equipment and construction standards mandated by the Port and Tanker Safety Act of 1978 (PTSA) went into effect for U.S. tank vessel and foreign tank vessels that enter U.S. waters on June 1, 1981. These include requirements for segregated ballast tanks (SBT), dedicated clean ballast tanks (CBT), crude oil washing systems (COW), inert gas systems (IGS), and improved steering gear standards. The requirements are consistent with the international standards developed by the Inter-Governmental Maritime Consultative Organization (IMCO) at the 1978 Tanker Safety and Pollution Prevention Conference. Final regulations implementing these requirements were issued on November 19, 1979 (IGS and improved steering gear standards) and June 30, 1980 (SBT, CBT, and COW).

Navigation and Vessel Inspection Circular (NVC) 1-81, dated February 18, 1981, provides guidance on the enforcement of these requirements for both Coast Guard and tanker industry personnel. Copies of this NVC may be obtained by writing to: U.S. Coast Guard (G-MP-4), 2100 Second St. SW, Washington, DC 20593.

Maine Maritime to Sponsor Courses on IGS/COW

The Maine Maritime Academy's Center for Advanced Maritime Studies (CAMS) will sponsor two one-week training programs on Inert Gas Systems and Crude Oil Washing (IGS/COW). The sessions will commence on September 7 and September 14, 1981.

The courses were developed by Wilson Walton International Limited, Croyden, England, manufacturers of Inert Gas Systems, in connection with The College of Nautical Studies, Warsash, England. The two organizations will supply instructors and course materials.

The five-day program covers all current inert gas systems and supporting systems techniques and operations in relation to safety requirements in tanker operations. A one-day course in Crude Oil Washing Systems is included in the package.

The objective of the Inert Gas and Supporting Systems for Tanker Safety course is to familiarize tanker officers with the design, operation, and maintenance of an inert gas system so that the full benefit of tank protection against fire and explosion may be realized. This entails a knowledge of the system from the boiler room to the cargo tanks and requires proper operation of associated equipment such as that used for closed loading, venting, gas detection and oxygen analysis.

The syllabus of the Crude Oil Washing course was developed on the basis of the Inter-Governmental Maritime Consultative Organization (IMCO) requirements for training. These were designed to meet impending introduction of mandatory crude oil washing for pollution prevention by IMCO (see preceding article for COW requirements in U.S.).

Inquiries concerning registration for the programs should be directed to the attention of Commander Leonard H. Tyler, Director of Conferences and Institutes, Maine Maritime Academy, Castine, Maine 04421; (207) 326-4311.

Commandant Visits China

Admiral J. B. Hayes, the Commandant of the U.S. Coast Guard, recently toured Coast Guard facilities in the western Pacific in an effort to get a clearer understanding of the variety of special circumstances under which the service operates. His itinerary was expanded when the Department of State arranged for him to make a diplomatic stop at the People's Republic of China (PRC) to discuss areas of mutual interest between the PRC and the United States.

Sandwiched into the stops at Coast Guard stations were four days in Beijing, the capital city of the PRC. While he was there, the Commandant discussed with Chinese officials such matters as Chinese participation in the AMVER program, the locating of two OMEGA monitor stations on PRC territory, ways in which the Coast Guard could help the Chinese establish a Loran-C chain, and arrangements for the Coast Guard to periodically inspect vessels and offshore drilling rigs that are being built for American customers. This last item is necessary in order for the vessels under construction to be certified for use as part of the U.S.-flag merchant fleet.

The Commandant said the talks went very well. "In principle, the PRC officials agreed to our mutual cooperation in these areas. Of course, more detailed discussions must follow at a later date."

He went on to say that this is another good example of how the Coast Guard in recent years has become a much more important instrument of U.S. diplomacy. The Coast Guard can deal with other countries on a variety of levels in such "humanitarian" areas as search and rescue and navigation systems in ways that other agencies cannot. "So often we can present the U.S. side of an issue in a more friendly atmosphere, laying foundations for further interchanges," he said.

First U.S. Deepwater Port Begins Shakedown Offloading of 270,000 DWT Supertanker

The Captain of the Port (COTP) and the Marine Inspection Office in the Eighth Coast Guard District (New Orleans) gave the OK for the Louisiana Offshore Oil Port Inc. (LOOP) to begin offloading 1.5 million barrels of light Saudi Arabian crude from the tanker TEXACO CARIBBEAN on May 5, 1981. The deepwater port is the first of its kind for the United States. With this facility, oil carried in tankers too large to go up the Mississippi River can be pumped directly into pipelines leading to refineries; in the past, such oil had to be transferred to smaller vessels for the trip into port. The superport's

pipelines connect it with 25 percent of the United States' refining capacity. It cost $ 700 million and was designed to pump 1.4 million barrels of oil per day. Technical personnel from Coast Guard Headquarters studied the design plan to verify compliance with Deepwater Port Regulations, and inspectors from Houston, Texas, and Morgan City, Louisiana, conducted on-site construction inspections. Initially, COTP New Orleans will have two inspectors stationed aboard the pumping platform complex to monitor the oil offloading operations and conduct foreign-flag vessel exams.

The superport complex is located 19 miles off the Louisiana coast. It consists of a pumping platform, control platform, and three single-point mooring (SPM) buoys with swivel bases moored at depths of approximately 110 feet. The buoys are capable of holding tankers weighing up to 700,000 DWT. Two strings of flexible hose, each approximately 1220 feet long, connect to the ship's manifold, and oil is pumped through the hoses down to the SPM fluid swivel base into a 56-inch pipeline leading to the pumping platform 8000 feet away. The hoses and the mooring hawsers are the critical points in the system. Hawser load-monitoring and leak-detection systems tied into the superport's computers continuously monitor operations to minimize the possibility of tanker breakout from the buoy and detect leaks in either the 19 miles of 48-inch-diameter offshore pipeline or the 28 miles of onshore pipeline to the Clovelly salt-dome storage area near Galliano, Louisiana. COTP inspectors in conjunction with American Bureau of Shipping surveyors will periodically monitor LOOP's maintenance of the entire SPM system in accordance with the Deepwater Port Regulations (33 CFR Parts 148 through 150).

The present pumping operation is what the industry calls "tight-lining," i.e., pumping the crude straight into the associated transportation pipelines (LOCAP), which connect LOOP'S 48-inch onshore line with the terminal at St. James on the Mississippi River. The Clovelly salt-dome storage is being temporarily bypassed because LOOP is about a year behind schedule for completion of this eight-cavity complex, which will be able to store approximately 32 million barrels of oil.

The LOOP superport is expected to offload a tanker in 32 - 48 hours, compared to the ten days it takes using lightering methods (transferring the product to smaller vessels). COTP's inspection staff, augmented to handle the deepwater port, will have its hands full monitoring LOOP operations, reviewing oil spill contingency plans, conducting safety and fire drills, and boarding the very large crude carriers (VLCCs) and ultralarge crude carriers (ULCCs) that dock at this first offshore deepwater port.

The first tanker offloading at LOOP not only started port equipment shakedown and evaluation of oil transfer operations but also provided $ 30,000.00 start-up money (2¢ per barrel x 1.5 million barrels) for the Deepwater Port Liability Fund. An article on this fund and another offshore oil pollution liability fund administered by the Coast Guard will appear in a future issue of the Proceedings.

MariChem 80 Proceedings Available

The proceedings of the Third International Conference on Marine Transportation, Handling, and Storage of Bulk Chemicals, MariChem 80, are now available from the MariChem Secretariat, Gastech Ltd., 2 Station Road, Rickmansworth, Herts, WD3 1QP, England. The price of the 240-page cloth-bound volume is £ 40.00.

MariChem 80 was held in London in October 1980. There were more than 650 participants, and 25 formal papers were presented in such areas as legislation and regulation, operations and safety, tank containers in the chemical trades, technical developments, and tank coatings and linings. The Proceedings of MariChem 80 includes all of the formal papers presented at the meeting, as well as a carefully edited verbatim account of the discussions and the four chairmen's comments. In addition, it contains a list of abbreviations associated with the chemical/gas shipping industries and, finally, a list of all participants and their affiliations.

The next meeting in the series, MariChem 82, will be held in the RAI Congress Centre, Amsterdam, June 22 - 24, 1982. Anyone wanting further information should write to the conference Secretariat at the address shown above.

Two New Publications from ABS

The American Bureau of Shipping (ABS) has announced the availability of two publications. The 1981 editions of the Record and Rules for Building and Classing Steel Vessels may be ordered from the Book Order Section, ABS, 65 Broadway, New York, New York 10006, or from local ABS offices throughout the U.S. and overseas. The Record, which contains the principal characteristics and classification data on more than 52,000 ships and marine structures, is in its 113th edition. It, and supplements that will appear through the year to report changes in information regarding ABS-classed vessels, costs $ 250.00 in the U.S. The three-volume publication also includes information about shipowners, their agents, and shipyards. The Rules for Building and Classing Steel Vessels is applicable to vessels 200 feet and over and includes revisions to requirements for fire-extinguishing systems and additional requirements for emergency sources of power to bring the rules in line with the International Convention for Safety of Life at Sea 1974, which went into effect May 25, 1980. Requirements were expanded specifically to include monitoring and controlling of slow-speed engines for automated vessels. The volume is available for $ 30.00 in the U.S.

(Reprinted from the May 1981 issue of the Jacksonville Seafarer)

Ocean Yearbook 2 Published

The University of Chicago Press now has available for purchase the second volume of its Ocean Yearbook series. The Ocean Yearbook is designed to serve as a comprehensive compendium of marine data, pulling together information that heretofore existed only in widely scattered sources. It includes an overview of the prin-

cipal events of the period under review (legislative acts, treaties, scientific discoveries, etc.), as well as articles on such subjects as ocean resources, ocean transportation and communications, marine sciences, military activities, the environment, and regional developments. About 40 percent of each volume is made up of appendixes containing ocean-related reports, documents, and technical data culled from a variety of sources.

Copies of Ocean Yearbook 1 (ISBN: 0-226-06602-9), $ 25.00, and Ocean Yearbook 2: (ISBN: 0-226-06603-7), $ 35.00, can be ordered from: The University of Chicago Press, 11030 Langley Avenue, Chicago, Illinois 60628. Special discounts are available for persons placing standing orders.

Contract Patient Care for American Seamen Curtailed

A final rule, effective immediately, was published on May 8, 1981, restricting contract patient care for American seamen. Contract patient care is care provided by non-Public Health Service facilities at the expense of the Service. Its authorization will henceforth depend on the availability of funds and other management considerations and be on such terms and conditions as the Secretary of Health and Human Services or his designee may from time to time announce by publication of a notice in the Federal Register. The preamble to the final rule, which will be mailed directly to contract service providers, constitutes notice that contract patient care will be restricted to situations involving 1) life-threatening medical emergencies as determined by the Service or 2) services needed by patients at Service facilities which the Service facility is unable to provide.

Curtailment of the contract care benefits was necessary because of fiscal constraints. Further details can be found in the Federal Register of May 8, 1981.

Propeller Club Announces Winners of Essay Contests

Twenty-three high school students have won trips on American ships and one a $250.00 Savings Bond in the annual Harold Harding Memorial Maritime Essay Contest for High School students, it was announced by Mr. William J. Wolter, National President of the Propeller Club of the United States. These national winners represent a cross section of the Club's wide geographical distribution of local Port Clubs in the United States and overseas.

The contest has been sponsored by the Propeller Club and its local clubs for over 46 years in order to broaden the education of teen-age students in maritime matters and acquaint the younger generation with the necessity for a strong American Merchant Marine. The theme for this year's contest was: "The American Merchant Marine and the National Interest."

The essay contest is dedicated to the memory of Harold Harding, National Secretary-Treasurer of the Propeller Club from 1931 until his death in 1952.

Also held was a maritime essay contest for college students. Four students won cash prizes totalling $ 1,400.00.

National awards and local prizes were presented by local Propeller Clubs in connection with observance of National Maritime Day, May 22, 1981.

Progress Reported on Vessel Management Information System

Major components of the vessel management information system, a cost-shared research project currently being conducted by the Maritime Administration (MarAd) and National Marine Services, Inc., St. Louis, Missouri, should soon be operational. It is hoped the project will lead to the development of a barge and towboat management system for U.S. inland waterways.

The vessel management information system is a recent computer communications development involving the use of CRT display terminals and computer file storage. Its purpose is to record all cargo inquiries, track the allocation of cargo down to the individual barge, keep track of the company's barges and towboats, and provide a summary of the costs and revenues associated with such cargo movements (a trip analysis).

The project is expected to be finished in July 1981. For more information, contact Robert Myer, National Marine Services, Inc., (314) 968-2300.

MarAd is also involved in a number of other projects. It has entered into cost-shared research contracts with four U.S.-flag shipping companies as part of its Cooperative Industry Research Program (this, in turn, is part of its Fleet Management Technology Program). American Steamship Company of Buffalo, New York, was awarded a contract to develop, install, and evaluate a computer-based system to manage ship maintenance and operations. The system will be installed on two self-unloading bulk carriers in American Steamship Company's Great Lakes fleet. Sun Transport, Inc., of Claymont, Delaware, was awarded a contract to review the entire shipboard inventory control process. The Sun Transport Inventory Management of Spares (STIMS) Project will encompass ongoing inventory control, restocking, and the continuous reporting of related management information to ships' personnel and shoreside management. Lykes Brothers Steamship Co., New Orleans, Louisiana, was awarded a contract to establish and analyze shipboard personnel information systems with computer programs on such areas as slop chest inventory and accounts, overtime, medical reports, and seagoing personnel employment records. Finally, Pacific-Gulf Marine, Inc., New Orleans, Louisiana, received partial financing for its project to develop a computer-based preventive maintenance and machinery history system for the M/V SUGAR ISLANDER. The vessel's existing manual system will serve as a basis for the computerization. The system will also incorporate shipboard and shoreside needs and shoreside purchasing capabilities.

The Fleet Management Technology Program was established by MarAd in fiscal year 1979 to improve the productivity, competitive position, operational performance, and profit-making capability of U.S. maritime industries.

The following items of general interest were published between April 24, 1981, and May 26, 1981:

Final rules: CGD 76-033a Lifesaving Equipment for Great Lakes Vessels; Exposure Suits; editorial change, April 27, 1981. CGD 80-033 Claims Regulations (33 CFR Part 25), May 18, 1981. CGD 78-027 Manning of Vessels, May 21, 1981. CGD 81-031 COLREGS Demarcation Lines, May 21, 1981. CGD 79-072 Stowage of Lifeboats and Liferafts, May 26, 1981.

Advance Notices of Proposed Rulemaking (ANPRMs): CGD 80-134 Operational Visibility From the Navigational Bridge of Commercial Vessels Operating in U.S. Waters, May 11, 1981.

Proposed rules: CGD 77-029 Ocean Dumping Surveillance System (withdrawal of proposed rule), April 30, 1981. CGD 80-157 Inland Navigation Rules Certificates of Alternative Compliance, May 14, 1981. CGD 80-115 Lights for Barges at Bank or Dock, May 18, 1981. CGD 81-036 IMCO Code Governing the Shipment of Bulk Solids; Request for Comments, May 21, 1981.

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 74-125a

These rules will constitute a general revision and updating of the electrical regulations to conform with the latest technology. They 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.

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 ANPRM was then issued to gather additional data and assess impacts related to existing barges.

The new NPRM on tank barge construction 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 informed the public of a deferment in the rulemaking process for these dockets. The comments received have raised significant questions concerning 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 was chosen to conduct the study. Part of the study, a two-day workshop, took place April 15 and 16, 1980. The study is scheduled to be completed by the end of May 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 already published NPRM 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

These rules will reduce accidental or intentional discharge of oil or oily wastes during vessel operations.

The basis of the rules is threefold. First, there is the need to reduce the number and incidence of oil spills. Second, the new rules will help clarify the existing rules. Finally, the new rules cover 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 rules, there is currently no scheduled publication date for a final rule.

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

These rules will amend the current regulations 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 the unique properties of liquefied gas and the dangers associated with them, new rules are being drafted. The environmental impact statement and regulatory analysis were completed in February 1979, and an NPRM on the rules is anticipated in December 1981.

Licensing of Pilots
CGD 77-084

These rules take 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 shiphandling 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). The following public hearings have been held in 1981: January 14 in Cleveland, Ohio, January 27 in Washington, DC, February 3 in New Orleans, Louisiana, and February 10 in San Francisco, California. Substantial revisions to the proposed rules are presently being considered.

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

These rules govern the operation of tank vessels in the Puget Sound area. They were 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

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

It 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). The following public hearings have been held in 1981: January 21 in St. Louis, Missouri, February 4 in New Orleans, Louisiana, February 18 in Long Beach, California, February 25 in Washington, DC, and April 1 in Washington, DC. Substantial revisions to the proposed rules are presently being considered.

Shipboard Noise
Abatement Standards
CGD 79-134

These standards will establish a maximum daily noise exposure for shipboard personnel and industrial personnel on outer continental shelf facilities. The standards will not restrict sound levels in specific compartments but only require that the personnel exposure during a 24-hour period not exceed a certain limit. An exception to this would be the specification of a maximum sound level in berthing spaces of 75dB(A), as envisioned. The limits would be more stringent for units contracted after 1988.

Development of this proposal has been aided by a Coast Guard-

contracted study performed by the U.S. Naval Ocean Systems Center (NOSC), San Diego, California. The study evaluated sound levels aboard several U.S. merchant vessels along with other available information and made recommendations on standards to control and/or eliminate the noise hazard. Copies of the study are available through the National Technical Information Service (NTIS), Springfield, Virginia 22161; NOSC technical documents numbers 243, 254, 257, and 267 and technical report number 405 should be requested.

Personnel and Manning
Standards for
Foreign Vessels
CGD 79-081b

These rules, deemed necessary to reduce the probability of oil spills, will establish minimum manning levels for foreign tank vessels operating in U.S. navigable waters. They 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).

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

This project has as its primary objective the prevention of further loss of life or property on the Great Lakes as a result of loss of buoyancy on bulk dry cargo vessels. As the project is envisioned, this will be achieved mainly through design requirements. Other solutions are also being considered, however. The need for protection against flooding on bulk dry cargo vessels on the Great Lakes was noted as far back as 1928. Recent casualties, most notably the sinking of the SS EDMUND FITZGERALD in 1975 with the loss of all hands, have added new impetus to efforts to correct this problem.

Two ANPRMs were previously published under a different docket number (CGD 77-162), one on March 16, 1978 (43 FR 10946), and the other on August 14, 1980 (45 FR 54095). These advance notices proposed subdivision requirements as a solution to the safety problem. Public comments on the ANPRMs indicated that the costs of meeting subdivision standards might place bulk dry cargo vessels in an uncompetitive position vis-a-vis the railroad and trucking industries. The thrust of the project has thus shifted from subdivision requirements only to a more comprehensive scheme including methods of reducing flooding and providing for crew safety. Alternative approaches being considered include:

a. Bad-weather warning system
b. Vessel traffic service system
c. Inspection of hatch covers and clamps before each sailing
d. Increased freeboard (i.e., reduced draft)
e. Restricted shipping season
f. High-water alarms and dewatering pumps
g. Collision avoidance systems and/or improved maneuvering characteristics
h. Improved lifesaving devices.

In approving the workplan for this project in January, the Marine Safety Council agreed to label it "significant." Publication of an NPRM is tentatively scheduled for November or December 1981.

* * *

A complete listing of all Coast Guard proposed regulations, both "significant" and "non-significant," appeared in the Thursday, April 2, 1981 Federal Register (46 FR 20035).

THERE ARE NO PUBLIC HEARINGS SCHEDULED FOR JUNE.

Summary of
Regulatory Decisions
Reached by the
Marine Safety Council
at its May 6 Meeting

CGD 78-098 Notification of Marine Casualties

An Advance Notice of Proposed Rulemaking (ANPRM) was published in the April 16, 1979, issue of the Federal Register. It requested comments on the possibility of requiring immediate notification of casualties by both U.S.- and foreign-flag vessels at extended distances offshore. The intent was to facilitate prompt response action and eliminate or mitigate environmental damage caused by pollution resulting from the casualties. At that time, the issue of notification requirements was under discussion by the Inter-Governmental Maritime Consultative Organization (IMCO). To date no change has been made in international law which would require notification of casualties by foreign-flag vessels. The Marine Safety Council unanimously approved the withdrawal of the ANPRM. No further action is to be taken. ⚓

Enforcement of the International Regulations for Preventing Collisions at Sea, 1972 (72 COLREGS)

At the recent meeting of the Inter-Governmental Maritime Consultative Organization (IMCO) Assembly, members noted the large number of contraventions of the 72 COLREGS which had been reported. Concern was expressed for the possible dangers created by these contraventions. In order to assist flag states in discouraging infringe-ments of the 72 COLREGS, the Assembly standardized the reporting form. This new report contains sufficient information to be accepted as adequate substantiation for enforcement proceedings by the flag state.

The Coast Guard had been receiving an increasing number of these reports. The most common report indicates contravention of Rule 10, which applies in or near a traffic separation scheme (TSS). While mariners must always be diligent to operate in accordance with the 72 COLREGS, it is recommended that they exercise special attention when operating in or near a TSS.

Each violation of any of the 72 COLREGS is investigated by the appropriate Coast Guard field office. Suitable action is taken at the conclusion of the investigation, which could result in suspension or revocation of the master's license or assessment of a civil penalty against the owner or operator of the vessel.

Regulating the Regulators:

New Reforms

Bring Greater Responsiveness

by Bruce P. Novak
Deputy Executive Secretary,
Marine Safety Council

You regular readers of the Proceedings probably think of it as a publication dedicated to safety. *(Especially if you read the letter from the editor in the May issue--Ed.)* Since much of what the Coast Guard does has traditionally been concerned with marine safety, the actions taken by the Council have often been in the safety area--hence, the association between the magazine and safety issues. Besides, we feel that the Proceedings has an obligation to keep you informed about safety issues that will have an impact on your lives and the places where you work.

The very name of the journal, however—Proceedings of the Marine Safety Council—, implies something additional. The Marine Safety Council is a board of Admirals which counsels the Commandant on the advisability of going ahead in various regulatory areas and on specific projects. The Proceedings should be and has been attempting to keep you abreast of what the Coast Guard is doing in the regulatory field. No one disputes the importance of safety, but the regulations designed to promote that safety, reduce pollution, or do a host of other things will also have a lasting and significant impact on your day-to-day lives. Consequently, recent developments in the regulatory area are of vital concern to you.

On February 17, 1981, President Reagan signed Executive Order 12291, which is titled simply "Federal Regulation." That Executive Order (E.O.) is one of several significant recent developments in the continuing effort throughout the Federal Government to revise the regulatory process and reduce the inflationary effects of the controls imposed by regulations. The other developments which will have the greatest impact on the general public are the Regulatory Flexibility Act of 1980 and the Paperwork Reduction Act of 1980. These three documents, taken together, represent a significant initiative in the Federal Government's efforts to reduce the cumulative burden of regulations and their attendant paperwork on the public. The Federal Government has been trying for some time to reduce the burden of regulations on the public, but 1981 is going to be an unusually active year. Up until now, most reform efforts, although very important to regulations specialists in Washington, have been largely invisible to the average citizen. The three reform measures I just mentioned, though, will be of great importance to those involved in any way

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with Coast Guard regulations development. Hopefully, many Proceedings readers fit into this category. Let's take the documents one at a time.

E.O. 12291 replaces President Carter's E.O. 12044. Like the previous administration's order, E.O. 12291 requires regulatory agencies to consider the economic impact of "major"* regulations, to study alternative methods of accomplishing the objectives of the proposal, and to make available to the public an explanation of the factors the agency considered in developing the rule. The new E.O. goes farther than the previous E.O. in several areas, however. For example, each alternative of every regulatory proposal must have an economic evaluation. The degree of evaluation depends on the impact of the proposal; each evaluation, however, is to include not only monetary considerations but other types of costs and benefits as well.

The requirements of the new E.O. could have far-reaching effects on the way the Coast Guard does its regulatory business, as I will discuss later on in this article.

The new E.O. also has a couple of other noteworthy provisions. For example, the Office of Management and Budget (OMB) has been vested with oversight responsibility for the regulatory agencies. This means that each regulation (with certain limited exceptions) can be reviewed by OMB. Final authority for ensuring compliance with the E.O. is thus centralized in that agency.

The final aspect of the new E.O. which is of special interest is the provision for review of existing regulations. This requires each regulatory agency to review all of the regulations that it presently has codified in the Code of Federal Regulations (CFR). The review is to be conducted in the same manner as for regulatory proposals.

Our second key development, the Regulatory Flexibility Act of 1980, went into effect on January 1, 1981. This Act requires agencies to look into the possibility of regulatory alternatives for small entities. The intent is to allow, wherever possible, less costly methods of compliance for small businesses and government organizations. In addition, the Act requires each agency to conduct a review of existing regulations in order to identify those which will have a significant impact on a substantial number of small entities. Those identified must be examined for possible alternatives in much the same way as regulations must be reviewed for economic impact. The Coast Guard review plan for this Act will be published in a future issue of the Proceedings.

* Under the new E.O., a "major" regulation is one that is likely to result in:

1) an annual effect on the economy of $ 100 million or more;
2) a major increase in costs or prices for consumers, individual industries, Federal State, or local government agencies, or geographic regions; or
3) significant adverse effects on competition, employment, investment, productivity, innovation, or the ability of U.S.-based enterprises to compete with foreign-based enterprises in domestic or export markets.

The final key development is the Paperwork Reduction Act of 1980, which went into effect on April 1, 1981. There has been a continuing effort by several administrations to reduce the amount of paperwork that the Federal Government requires of the public. For the purposes of this Act, the filling out of Government forms, the reporting of information, and the keeping of records are to be considered a burden. In order to reduce that burden, the Paperwork Reduction Act establishes a paperwork budget. It works much the same way that a financial budget works. Each agency is given a total number of burden hours that it can impose. Within those limits, the agency can collect whatever information it needs, subject to OMB approval. However, since there is a limit to the burden that the agency can impose, it must look closely at all of the things that it would like to do and select those which are most essential. As with the E.O., OMB is the key watchdog. OMB must approve each information collection request, and a regulation that contains an information collection requirement cannot be promulgated until OMB has granted its approval.

Now, those of you have waded patiently through what I will admit is material of limited interest are probably wondering, "What impact will all of this have on me?" Well, the Coast Guard is in the regulations business, among other things. A good deal of our public involvement is the result of regulations. The vessel inspection, pollution prevention, and boating safety programs are based largely on regulations which have been codified in the CFR. Our licensing responsibilities, documentation of vessels, and vessel traffic control, not to mention a host of other activities with which you associate the Coast Guard, all depend on our regulatory base in the CFR. These activities must be responsive to change. We are petitioned every year by members of the general public as well as professional organizations for updates and changes. From here on in, all of these changes are going to be subject to the controls I have mentioned. As is the case with every organization, the Coast Guard's resources are finite. Performing the analyses required by the three measures just discussed, plus conducting the reviews of existing regulations, is going to take a significant amount of time. As a result, you can expect to see fewer brand-new initiatives. Those that you do see will be supported by a more comprehensive analysis.

I would like to stress that the mere fact that these requirements happened to come into effect in 1981 does not mean that thus far the Coast Guard and other agencies have ignored the costs associated with regulations. The monetary impact of individual proposals has always been of concern to the Marine Safety Council. One of the events which impressed me when I first became associated with the Council in 1971 was the cancellation of a proposed project because it was not cost-beneficial. Admittedly, the process we used in 1971 was not as "scientific" as those used today, but, nevertheless, the concern was there.

The real import of the three reform measures discussed is that they represent an accelerating shift in officially recognized policy at high levels of Government. They are part of a trend of requiring even greater accountability to the public on the part of Government regulators.

RORAC

Holds Final Meeting

by Ensign Edward G. LeBlanc
U.S. Coast Guard Headquarters
Washington, DC

The Rules of the Road Advisory Committee (RORAC) held its final meeting April 15 - 16, 1981, in Linthicum Heights, Maryland, at the Maritime Institute of Technology and Graduate Studies (MITAGS).

The Committee's charter will expire in July of this year. A Rules of the Road Advisory Council will be formed in late 1981 to advise the Commandant in much the same way RORAC did. Formation of the Council was mandated under Public Law 96-591, the Inland Navigational Rules Act of 1980. Ironically, working successfully for the passage of this comprehensive bill unifying the rules of the road was perhaps RORAC's most notable accomplishment.

The bulk of the meeting was devoted to three main issues: 1) consideration of actions taken by the Inter-Governmental Maritime Consultative Organization (IMCO) regarding the International Regulations for Preventing Collisions at Sea, 1972 (72 COLREGS), 2) consideration of the technical annexes to the unified rules, and 3) consideration of the use of strobe lights as distress signals. Near the end of the meeting the Committee members were given a tour of the MITAGS campus and facilities.

Following its most recent session, IMCO's Sub-Committee on Safety of Navigation (SUBNAV) submitted to the Maritime Safety Committee for approval 56 amendments to the 72 COLREGS. Most of the amendments involved editorial and insignificant changes. RORAC discussed at some length the proposed amendment to Rule 10(d) regarding traffic separation schemes. The amendment reads, "However, vessels of less than 20 metres in length and sailing vessels may under all circumstances use inshore traffic zones." Several members of the Committee felt the wording of the amendment was unclear and that the provision in Rule 10(j) was adequate and should prevail.

Also discussed was the proposal to add two paragraphs (k) and (l) to Rule 10 to exempt survey and cable vessels from complying with this rule to the extent necessary for them to carry out their operations.

Under consideration was new rule 23(c)(3) concerning placement of lights for small craft (less than 12 meters long) and a provision permitting the use of combination tri-color lights on vessels up to 20 meters long.

In regard to Rule 27(f), the members discussed changing the word "minesweeping" to "mineclearance." A provision was added stipulating that vessels engaged in mineclearance operations display light and shape configurations indicating that it was dangerous for another vessel to get within 1000 meters of the mineclearance vessel. It was determined that a vessel does not have to be underway to display the lights or shapes indicating a mineclearance vessel is in opera-

Rear Admiral Wayne E. Caldwell presents RORAC Chairman Gordon W. Paulson with an award (a replica of the first and last pages of Public Law 96-591, the Inland Navigational Rules Act of 1980). Mr. Paulson's efforts were instrumental in getting the bill passed.

tion.

Next on the agenda was consideration of the technical annexes to the Inland Navigational Rules Act of 1980. Annex I, "Positioning and Technical Details of Lights and Shapes," Annex II, "Additional Signals for Fishing Vessels," Annex III, "Technical Details of Sound Signal Appliances," Annex IV, "Distress Signals," and Annex V, "Pilot Rules" were discussed. Generally, the annexes were approved by the Committee with a few minor changes.

The Committee next turned its attention to perhaps the major issue of the meeting, the use of strobe lights as distress signals. (See the following article for an expanded discussion of this issue.)

RORAC members were given a full tour of the modern and expanding MITAGS campus and facilities. Among the most impressive sights were the two ship simulators currently under construction. These state-of-the-art simulators are so complex that they will be able to simulate almost any condition encountered at sea. The MITAGS simulators can simulate daylight and nocturnal conditions, changes in weather, and equipment malfunctions. The bridge of the simulator can even pitch and roll. The image projected on the 360° screen is a photographic image rather than a computerized display.

To wrap up the final RORAC meeting, a luncheon was held in the MITAGS dining facility. After the luncheon, Rear Admiral Wayne E. Caldwell, USCG, sponsor of this Advisory Committee, spoke to the members. He thanked the Committee, and especially its Chairman, Mr. Gordon Paulson, for all the work and effort put forth to ensure passage of H.R. 6671, the Inland Navigational Rules Act of 1980. He noted the great progress this Act symbolizes from the days

RORAC Executive Director Captain D. B. Charter addresses the Committee as Rear Admiral Caldwell looks on.

past when there were no codified navigation rules. Rear Admiral Caldwell remarked that although this was the final meeting of RORAC, it was really just gaining a new name and compensation for its members as the Rules of the Road Advisory Council.

Arrangements are currently underway at Headquarters (G-WWM-2) to recruit applicants for Council membership and to establish the new Rules of the Road Advisory Council. A notice regarding applications will be published in the Federal Register late this summer. The first meeting of the Council will take place in early 1982. The Council will carry on the tradition of its predecessor in working to improve the nautical rules of the road. ⚓

The Strobe Light Controversy

by Lysle Gray
U.S. Coast Guard Headquarters
Washington, DC

High-intensity strobe lights adorn the masts of thousands of sailboats and fishing vessels. Their skippers believe that these lights are their only protection against the huge merchant vessels which plow through the seas like blind and unforgiving juggernauts, grinding up the hapless smaller vessels which stray into their path. Most merchant ship masters swear that this is an emotional and libelous exaggeration, and it probably is.

But the continued sales of strobe lights at prices as high as $ 500 each and the widespread popularity of Justin Scott's bestselling novel Shipkiller show how real this fear is in the minds of those who go down to the sea in small boats. Shipkiller enables the small boat skipper who has had a close encounter with a much larger vessel at night to watch vicariously as the hero acts out their mutual fantasy. Armed with an anti-tank rocket launcher, he hunts down a supertanker to avenge the death of his wife and the loss of his boat under the bows of the Leviathan.

The term strobe light is the popular misnomer for a xenon gas discharge lamp which flashes a brilliant white light as bright as a million candlepower. These are the lights we see on airplanes, helicopters, emergency vehicles, and high structures such as skyscrapers and radio towers. Smaller versions of these same lights are used on life jackets and man-overboard buoys. The electronic flash for cameras is another

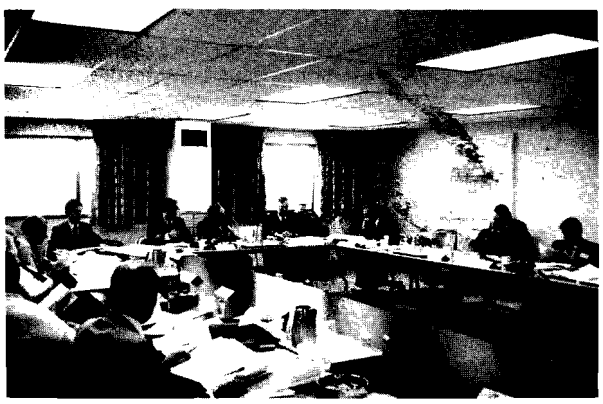
version of strobe light which is designed to flash once for each picture instead of continuously.

With strobe lights so widely used and obviously so useful, why is their use in the maritime world causing such controversy? The controversy arises from the fact that, until recently, strobe lights were not specifically mentioned in the Rules of the Road, and the language now being proposed will restrict their usage. Add to this the fact that strobe lights are being used as both a distress signal on life jackets and as a signal to attract attention on the mast of a sailboat when collision is imminent. In the first case mariners are expected to steam toward the light and rescue the person showing it, while in the second they are expected to stand clear. It would appear that strobe lights cannot adequately serve both functions without causing confusion and, perhaps, tragedy.

Another objection to the use of strobe lights by vessels stems from the fact that the varous aids to navigation such as buoys and lighthouses all exhibit flashing lights. The quick-flashing lights of buoys used on wrecks and at the junctions of channels, for example, flash 60 times per minute, which is the same frequency used by life jacket lights, which are required to flash 50 - 70 times per minute. In the maritime world, flashing lights almost always signify aids to navigation and steady lights almost always signify vessels.

Despite all the problems, most mariners on both large and small vessels believe that strobe lights can perform a useful function in weather conditions rendering the normal running lights of a sailboat invisible to the lookout stationed high on the deck of a merchantman. Many offshore sailors can describe specific instances when they were certain that the brilliant flash of their boat's masthead strobe was all that attracted the attention of the watch on a supertanker which changed course at the last minute to avoid a collision. On the other hand, it has been reported that a West-Coast Coast Guard cutter steamed ten miles out of its way in the belief that a sailboat exhibiting a flashing strobe light was in distress. So the unanswered question is: how do we avoid abuse, misuse, and confusion in the use of strobe lights?

At the most recent meeting of the Inter-Governmental Maritime Consultative Organization (IMCO), the Maritime Safety Committee proposed an amendment to the International Regulations for Preventing Collisions at Sea, 1972 (72 COLREGS) which would restrict or prohibit the use of strobe lights as signals to attract attention. If this amendment is adopted, vessels will not be permitted to use strobe lights as anti-collision lights in international waters. At the present time it appears that the amendment will go into effect sometime in 1983. Also, Annex IV of the 72 COLREGS does not list the strobe light as a recognized distress signal. Therefore, there will be no application for this potentially useful signal light in international waters.



RORAC members discuss the problems of using strobe lights as distress signals during their last meeting.

The U.S. delegation to IMCO has registered its disapproval of this amendment. That may or may not have some effect on the voting of the other 107 member nations of IMCO. The Canadians have unofficially expressed the view that the wording of the amendment will permit the use of a strobe light as a signal to attract attention under extreme emergency conditions. The U.S. Coast Guard has expressed the opinion that a strobe light could be used under Rule 2 of the 72 COLREGS, but probably not until the vessel is in extreme danger, at which point it might be too late.

All of the above apply to international waters. To add to the confusion, a different approach is pending for United States inland waters. Congress last year passed the Inland Navigational Rules Act of 1980, the provisions of which go into effect December 24, 1981. That Act combines all of the various inland rules into one document bearing a strong resemblance to the 72 COLREGS. (See the article beginning on page 122.) The work involved in unifying these rules was done by the Coast Guard and the Rules of the Road Advisory Committee (RORAC). RORAC met for the last time in April 1981 (see the preceding article) to consider the annexes to the new Inland Navigational Rules Act, which will be similar to the 72 COLREGS annexes. At this meeting RORAC voted to add strobe lights to Annex IV as one additional recognized distress signal. The members chose a flashing rate of 50 - 70 flashes per minute to be consistent with the present rules for flashing lights on life jackets.

At this same meeting RORAC passed by a very narrow margin a resolution permitting strobe lights to be used as a signal to attract attention, provided they are used only in short bursts of 15 seconds or less. That proposal is likely to be even more controversial than the use of strobe lights as distress signals, but at least it recognizes that in an emergency situation the prudent mariner will use every means available to warn another of an impending collision.

It is reasonable to expect that if strobe lights are accepted as distress signals under the United States Inland Rules, the U.S. delegation to IMCO will propose a similar amendment to the 72 COLREGS. In the meantime, one might suppose that the international sailboat racing fraternity, whose membership is both wealthy and influential, will be making its views known to the representatives of other countries in IMCO. Although strobe lights have been widely available and in use for more than a decade, they are considered revolutionary in the field of maritime law, which still recognizes the burning tar barrel as the distress signal of choice.

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A Look at the New Inland Navigation Rules

(Part 4 of a 5-part series)

This article is the fourth in a series discussing the major provisions of the new Inland Navigation Rules which will go into effect on December 24, 1981. The new Inland Rules follow the format and numbering system used in the 72 COLREGS. This article will cover Part D—Sound and Light Signals. The next and last article in this series will provide a look at Part E (Exemptions) and the five regulatory technical annexes.

PART D—Sound and Light Signals

This Part prescribes the various signals to be used by vessels to communicate their intentions and actions to other vessels. It includes the new rule permitting the use of radiotelephone in lieu of whistle signals.

Rule 32. Definitions

This rule, which defines sound signals, is identical to its counterpart in the 72 COLREGS. The inland rules currently in effect provide that a "whistle," "siren," or "foghorn" be used to sound the signals; the differences between these devices, however, are not fully described. The new rule simply requires that the sound-signalling appliance be able to produce sounds in compliance with certain well-defined technical requirements to be contained in Annex III. The duration of the sound signals is essentially unchanged.

Rule 33. Equipment for sound signals

This rule is identical to Rule 33 of the 72 COLREGS and is similar to the rules currently in effect. It omits the general statements found in the latter and clearly cites specifications to be contained in Annex III. The sound-signalling devices on vessels less than 12 meters long will not be required to conform to the exacting technical standards applicable to devices on longer vessels.

Rule 34. Maneuvering and warning signals

This rule, which differs significantly from its counterpart in the 72 COLREGS, retains provisions of the three sets of inland rules currently in effect. It preserves the "signals of intent and reply" embedded in U.S. maritime custom. These signals are considered by many to be much safer for use in confined inland waters than the 72 COLREGS "signals of action" which are used on the high seas. The format and wording of

the 72 COLREGS have been followed as closely as possible.

Rule 34(b) allows the use of a "whistle light" to supplement the whistle sound signal. This is an additional safety factor meant to assist mariners in identifying the vessel signalling and the signal given. The signal is similar to the visual signals prescribed by the Western Rivers Pilot Rule 95.21 currently in effect.

Rule 34(c) retains the overtaking signals and procedures found in the rules currently in effect. Unlike its counterpart in the 72 COLREGS, this rule requires the exchange of whistle signals by overtaking vessels on open waters as well as in narrow channels and fairways, regardless of whether or not the overtaken vessel must maneuver. Additionally, this rule retains a more concise signal (one or two short blasts, for example) to indicate the side of passing in lieu of the more complex sequence of signals required by the 72 COLREGS.

Rule 34(d) deals with the danger signal. It is identical to Rule 34(d) of the 72 COLREGS and is similar to the rules currently in effect. This rule will apply to all vessels, not only those that are power-driven. The number of blasts to be sounded has been changed from four or more (as specified in the Inland and Western Rivers Rules now in effect) to "at least five short and rapid blasts on the whistle." This conforms to the present International Rules as well as Great Lakes Pilot Rule 33 CFR 90.2.

Under this rule, the danger signal must be given by any vessel in doubt as to the actions or intentions of an approaching vessel if the vessels are in sight of one another. If, because of restricted visibility, the vessels are not in sight of one another, only the signals prescribed in Rule 35 are required. The danger signal is not intended in any way to be substituted for fog signals, and vessels should not indiscriminately sound the danger signal when unable to see another vessel. However, if a vessel detected an immediate situation on radar or by other means which could result in a collision, the responsibility requirements in Rule 2 would permit a vessel to sound the danger signal if it thought such a signal would help avoid immediate danger.

Rule 34(e) prescribes the bend signal already mentioned in Rule 9(f). It is identical to Rule 34(e) of the 72 COLREGS. Its blind-bend signal requirement is similar to those of the Inland and Great Lakes Rules currently in effect. This signal must be used by all vessels, not only by those that are power-driven.

Rule 34(f) is identical to Rule 34(f) of the 72 COLREGS and cautions mariners on large vessels fitted with more than one whistle to use only one whistle for maneuvering signals.

Rule 34(g) is a modification of the inland rules currently in effect. It does not appear in the 72 COLREGS. The requirement for a sound signal for vessels leaving a dock or berth is considered a prudent and precautionary action, since such a signal announces the maneuver to other vessels in the area.

Rule 34(h) is new and is not found in either the 72 COLREGS or the inland rules currently in effect. The use of vessel bridge-to-bridge radiotelephone has become widespread, and Rule 34(h) sanctions its use by allowing allowing vessels to reach an agreement on passing by radiotelephone rather than exchanging whistle signals. Whistle signals are required if for any reason an agreement cannot be reached by radiotelephone.

Rule 35. Sound signals in restricted visibility

Rule 35 is identical to its counterpart in the 72 COLREGS except for two modifications. In Rule 35(c), reference to "vessels constrained by their draft" has been deleted in keeping with deletion of these words from Rule 18(d). In Rule 35(j), which is not found in the 72 COLREGS, the provisions of the Inland Rule 15(d) now in effect, concerning special anchorage areas, have been included. The sounding of fog signals by small vessels in designated special anchorage areas is not considered necessary.

Sound signals for vessels in restricted visibility is one area where, for no apparent reason, the various rules now in effect differ significantly. Any signal, as long as it is unique, is heard and is understood and should be appropriate. Adoption of Rule 35 should significantly ease the burden for mariners transiting between various waters of the United States. The maximum time interval between sounding fog signals has been lengthened from the one-minute requirement (found in each of the sets of rules now in effect) to two minutes to conform with the 72 COLREGS. This is not considered a relaxation of the rules, as the term "of not more than" is used in each instance.

Under this rule, a mariner may sound signals as often as he considers necessary to notify another vessel of his presence in restricted visibility. In crowded harbor areas, the continuous sounding of the presently required fog signals tends to add to confusion rather than safety.

Rule 36. Signals to attract attention

This rule is identical to Rule 36 of the 72 COLREGS. The concept embodied in this rule is not new. Fishermen on the high seas have been authorized to use searchlights to indicate the presence of their gear. The success of this has led to the extension of the use of searchlights to all vessels to permit identifying potential hazards.

Rule 37. *Distress signals*

This rule is identical to Rule 37 of the 72 COLREGS. It requires use of the internationally recognized distress signals to be contained in Annex IV.

This concludes this issue's installment on the new Inland Navigation Rules. The next installment will begin with Part E, Exemptions. As noted in the last issue, copies of the new Inland Navigational Rules Act are available for $ 1.50 from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402; (202) 783-3238 (specify P.L. 96-591, Stock Number 022-003-92759-0). A new edition of CG-169, Navigation Rules, International--Inland, will be published late this year and will also be available for purchase from the Government Printing Office.

Could Your Crew Handle a Medevac?

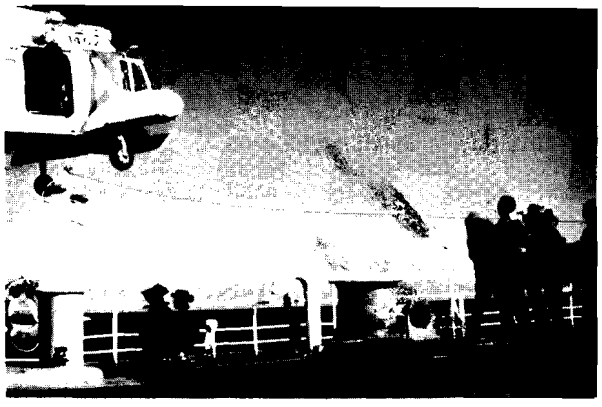
by PA2 Jim McGranachan,
Third Coast Guard District

The "victim" was an able-bodied seaman who plunged 16 feet down a ladder on the SS ALASKAN. Crewmen who heard him fall automatically prepared themselves for a medical emergency.

The diagnosis? A compound fracture of the right forearm and a separated right shoulder. The particularly nasty nature of the compound fracture alarmed Captain Robert H. Pelham, master of the 665-foot chemical tanker. Pelham was concerned by the extent of the injury, and his fears were borne out by the opinion of the ship's corpsman. Seaman Michael K. Higginbotham needed immediate attention onshore in order to avoid serious blood loss.

The tanker continued en route from Texas City, Texas, to the Port of New York. Captain Pelham's request for a helicopter evacuation was received by Coast Guard Group Office Sandy Hook in New Jersey. From there, the message was relayed to the Coast Guard Air Station in Brookyn, New York. Within 35 minutes, Lieutenant Chris Dewhirst and Aviation Electronics Technician Second Class Dan Hess were hovering 15 feet above the fantail of the ALASKAN.

Medical evacuations are common in the Coast Guard, but this one was different. Although Higginbotham was smoothly hoisted from the deck of the ALASKAN, his final destination was not a safe, warm hospital room. Rather, the young sailor, who in actuality is a Hospital Corpsman Third Class on board the USCGC SASSAFRAS, was lowered back to the tanker's deck. For the next 90 minutes, the scenario was repeated while Coast Guard and civilian photographers filmed all aspects of the Medevac for training and feature film production projects.

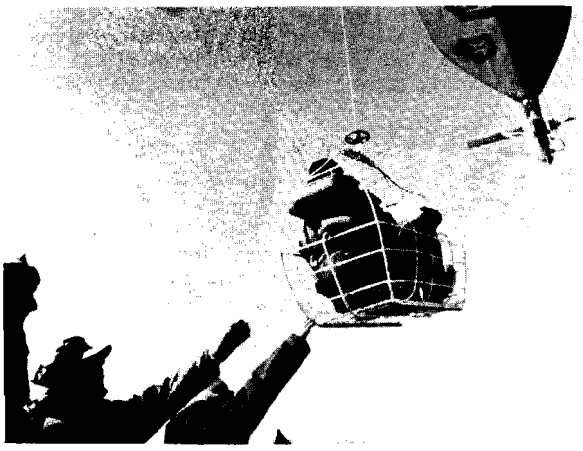


Coast Guard Photojournalist Tom Gillespie (crouching beneath helicopter) films simulated emergency medical evacuation for maritime industry safety film. Photo by PA2 Jerry Snyder, Third Coast Guard District

A crewman on board the Union Carbide chemical tanker SS ALASKAN tends a trail line as "victim" Michael K. Higginbotham is evacuated by a helicopter from Coast Guard Air Station Brooklyn. Photo by PA2 Jerry Snyder, Third Coast Guard District

This unusual opportunity for Coast Guard pilots to drill with a merchant vessel was a direct result of the concern generated during the historic rescue of more than 500 people from the cruise ship PRINSENDAM in the Gulf of Alaska in 1980. The use of helicopters during that monumental rescue effort focused the attention of the marine industry on the procedures required to safely airlift sick or injured crewmen from the deck of a merchant vessel.

The Coast Guard, in conjunction with Marine



The basket holding Seaman Higginbotham is lowered into the waiting hands of crewmen on the SS ALASKAN for a second take of the simulated evacuation. Photo by PA3 Gregory Creedon, Third Coast Guard District

Transport Lines, Inc. (operators of the SS ALASKAN) and Union Carbide Corporation (owners of the SS ALASKAN), conducted the Medevac exercise with the primary purpose of producing a film to teach America's merchant seamen the proper techniques used in air-sea rescue.

Mr. William Daraghy, fleet safety coordinator for the 34-ship Marine Transport Lines, explained his company's intentions. "Most American merchant seamen are completely unfamiliar with helicopter operations. Helicopter pilots often find themselves trying to explain, via radio, what preparations must be made in order to safely hoist a victim." Daraghy noted, "This can eat up precious time and fuel. Our intention is to familiarize our merchant seamen with air-sea rescue techniques in order to facilitate the Coast Guard's job of evacuating people by air."

Captain Robert H. Pelham, master of the SS ALASKAN, expressed his feelings about the project to a number of news reporters who were along to witness the exercise. "This is the first time I've heard of Coast Guard helicopters drilling with a merchant vessel. I think it's a very good idea to get a rapport between the Coast Guard and us on their method of working. Those people are professionals. It's not a game with them. It's a very real thing," he said.

Coincidentally, three days after the drill with the SS ALASKAN, a helicopter from Air Station Brooklyn hoisted a Spanish fisherman who had sustained injuries to his right arm and shoulder exactly as depicted in the simulated Medevac.

Final editing on the Medevac film is now being done by Video Library Systems, Inc., 100 13th Avenue, Ronkonkoma, New York 11779; (516) 585-4600. Copies of the film, costing approximately $ 100.00, will be available in mid-July. ‡

Coast Guard Cautions Boaters on Proper Use of Visual Distress Signals

The Coast Guard urges boaters to exercise caution in the use of flare pistols, since some of the pistols can prove to be extremely dangerous if not properly used.

Some manufacturers have chosen dimensions and materials which allow shotgun shells to be forced into their pistols. When these pistols were tested with shotgun shells in them, the barrels broke apart and the shot travelled only a few feet. The tests showed that if a pistol is misused in this way, the person firing the pistol and those close by could be seriously injured by flying fragments of the pistol. The flares these pistols are intended to fire do not have an explosive charge like a shotgun shell and are reasonably safe to use as intended.

Visual distress signals are being carried by more boaters as a result of a Federal regulation that went into effect January 1, 1981. The regulation requires certain boat operators to carry visual distress signals when on the Great Lakes, ocean waters, and bays and sounds connected to the Great Lakes or ocean waters and those rivers connecting to these waters to the point where the river first narrows to two miles across.

The Coast Guard points out that boaters are free to select devices best suited to their particular situations. About 20 manufacturers are producing accepted signals. Although most signals are pyrotechnic, boaters may choose instead to carry an electric distress light and an orange flag distress signal to meet both night and day requirements.

All signals must meet Coast Guard standards, so each accepted signal now being manufactured will be marked with one of the Coast Guard numbers listed in the regulation. Older signals and signal pistols which have been accepted are also listed in the regulation. Since signals may be subject to Federal, State, and local restrictions such as firearms regulations, boaters should check applicable laws and regulations before purchasing any particular type.

Some of the signals that a boater may carry to meet the regulation are aerial flares launched from signal pistols approved by the Coast Guard. Coast Guard standards for the pistols provide for reasonable safety and reliability when the pistols are properly used with approved aerial flares. The Coast Guard has not approved any pistol that has chamber and bore dimensions for a standard round of ammunition, although such ammunition can be forced into the chambers of some pistols.

Coast Guard pamphlet "Visual Distress Signals for Recreational Boaters" can be obtained from Coast Guard district offices or by writing U.S. Coast Guard (G-BEL-4/43), 2100 Second St. SW, Washington, DC 20593. The pamphlet explains the new Coast Guard regulation and gives precautions for the handling and storage of the signals.

Learning to Survive an Accident on the Water

If an offshore accident were to occur, would you and your employees know what to do? Personnel in the petroleum industry asked themselves that question in the early 1970s and decided some sort of structured in-water survival training was needed. They approached Margaret McMillan, who developed an Offshore Water Survival Program for the University of Southwestern Louisiana. While serving as director of the program, Miss McMillan discovered that training in the use of U.S.-Government-required lifesaving equipment was virtually nonexistent. Following her early retirement in 1977, Miss McMillan founded her own company, McMillan Offshore Survival Technology (MOST), in Lafayette, Louisiana. To date, MOST has trained over 7000 workers; ten of these credit MOST with their survival of water emergencies.

The MOST program is designed to give its participants an overall framework for responding to accidents. It provides both theoretical (classroom) and practical ("hands-on") training, but the ultimate goal is to give its participants the confidence which comes from such training. While non-swimmers receive individual attention, for example, swimming lessons per se are not given; instead, MOST aims to make non-swimmers confident of their ability to use lifesaving equipment and stay afloat while wearing work clothes.

MOST's one-day training program is set up as follows:

The morning session begins with an overview of offshore overwater emergencies followed by the topic of transfer over water. The proper methods of riding the personnel basket in different situations are shown and analyzed.

Next, a considerable amount of time is spent on appropriate survival techniques to use in the event of a helicopter ditching. Basic precautions upon entering and leaving the craft, how and when to properly use the inflatable life jacket, evacuating a ditched helicopter resting on the water, and escape from a submerged and upturned craft are thoroughly discussed. Particular attention is devoted to the helicopter life raft, especially its use and equipment.

Next to be given close attention are the survival systems which are available to the offshore worker. The proper procedure for abandonment of overwater structures and vessels and subsequent use of enclosed lifeboats, marine life rafts, life floats, and survival equipment are discussed and illustrated. This is followed by a description of the five types of personal flotation devices, or PFDs, with emphasis placed on types I, IV, and V, which are found in the work environment.

From the participant's standpoint, solutions to in-water problems are the most meaningful of the morning session. Entering the water from a height, survival floating, and swimming through debris, oil, and fire are discussed and studied.

Margaret McMillan has twice served as a U.S. delegate to Inter-Governmental Maritime Consultative Organization (IMCO) meetings on lifesaving appliances. She has had many years of experience in evaluating and teaching the use of lifesaving appliances in her work in water safety. Miss McMillan was one of the founders of the International Association of Sea Survival Training.

Finally, because hypothermia is a new concept to the majority of each class, much time and reference material are devoted to its causes, prevention, and treatment.

The afternoon session begins with the group divided into two sections—one to master survival-floating techniques and the other to work with PFDs. The survival float is taught first in shallow water and then practiced in deep water. By the end of the 45-minute session, participants are expected to be able to perform this skill in deep water for 5 minutes. Videotaping enables the participants to observe themselves and others and thus perfect the skill.

Meanwhile, the PFD group has practiced various methods of getting into Type I PFDs in shallow water. After practicing donning the PFDs blindfolded, members of this group proceed to deep water, where they repeat the exercise. Following this, movement patterns and rescue techniques are practiced.

For the next two hours, the group is divided into four teaching stations. At one station, participants practice escaping from a submerged and overturned helicopter, using simulated conditions (chair, seat belt, blindfold). Another group practices entering the water from a height, with and without PFDs. A third group practices clothing inflation skills, after being warned that clothing should not be taken off in water below 21°C (70°F) because of possible hypothermic reaction. Proper techniques for using the work vest and buoyant apparatus (life float) are also practiced at this station. The fourth station involves righting and then boarding an inflatable life raft. Correct procedures for the use of the helicopter life raft are practiced; these skills include boarding, positioning of group members, and assisting injured persons in boarding.

In response to the growth in the offshore industry, MOST has scheduled sessions in various geographical locations. In the planning stages is a training site in Lafayette, Louisiana. This facility will include a platform which would permit training workers in the use of enclosed lifeboats and davit-launched lifeboats. It would also include a helicopter simulator for underwater escape training. Research needs of the offshore industry would be aided by appropriate facilities such as towers to measure the effectiveness of entry techniques from different heights and a wave tank for testing the efficiency of different PFDs, survival suits, etc.

While the Coast Guard does not endorse individual programs, it supports the idea of survival training and feels that the public should be aware of what is being done in the field. Articles from other companies involved in promoting safety in this area would be more than welcome.

The Great Bangor Disaster

by PA2 Joe Lombardo
First Coast Guard District

BOSTON,—The unpredictable winds of May in the Bay of Fundy have been the nemesis of many vessels, and the "disaster" of May 13 proved to be no exception. The "tanker" GLOBAL MERCHANT, hailing from Panama, fell victim to the bay's perilous winds and the jagged shoals of Wolves Island and spewed forth thousands of barrels of oil, contaminating the coasts of Canada and Maine.

Representatives from the U.S. Coast Guard, the Canadian Coast Guard, the Canadian Environmental Emergency Team, the Pollution Response Branch of the U.S. Environmental Protection Agency, the U.S. Federal Fish and Wildlife Department, the Maine State Department of Environmental Protection, and a host of others all descended on the scene of the disaster at the Ramada Inn, Bangor, Maine.

The disaster, which was in fact a planned exercise, brought together some of the top people in the pollution response field and gave the U.S. and Canadian officials a chance to demonstrate the compatibility and efficiency with which the two countries can work if the need arises.

Officially, the exercise was titled "Joint Canada/United States Oil Pollution Training Exercise." It was conducted by personnel from the Marine Safety School, U.S. Coast Guard Reserve Training Center, Yorktown, Virginia. In addition, help was provided by people from U.S. Coast Guard Headquarters, the Canadian Coast Guard, and various departments and agencies from both countries, making for an excellent test of the countries' response mechanisms.

The origin point for havoc was a room dubbed "control," and from here literally hundreds of problems arose to challenge the participants. Phone lines,

A bustle of activity in the "control room" gives an indication of the effort put forth by the training team from the Marine Safety School, U.S. Coast Guard Reserve Training Center, Yorktown, Virginia.

radios, navigational charts, irate citizens, oil-covered Newfoundland dogs, scientists, all of the activities inherent in an oil spill transpired in a scant six hours and gave the participants a chance to flex their mental muscles and get a feel for what could really happen if such a situation arose.

Since the spill would have been the responsibility of the Marine Safety Office (MSO) Portland, Maine, had it been real, Commander Keith Pensom, Commanding Officer of MSO Portland, and his crew spearheaded the efforts of the primary response team for the U.S. Coast Guard. Setting up shop at "Smitty's Hotel, Penfield, New Brunswick, Canada," MSO personnel immediately established a game plan with their Canadian counterparts and began taking action on the "disaster."

Each move undertaken was designed to transpire as if the situation had indeed been real. This entailed "computing" a number of factors. Requests for additional resources meant extra time, and this was calculated into the response team's planning. Incoming calls had to be handled as effectively and efficiently as they would have been if the event had actually taken place. The same held true for radio communications, since real radios were used.

To add to their plight, the participants' every move was watched via monitors in the Ramada's lounge by an audience of invited guests and representatives from the field.

The flurry of activity never seemed to stop. If there was a lag, the people from "control" ensured it was short-lived. Every conceivable event was originated from the control room. The experience these people had had in the field added an undeniable sense of drama to the situation.

A critique of the event was held the next day. Lieutenant Commander Ed Kangeter of the Training Center in Yorktown noted that planning had begun two months prior to the two-day exercise. Representatives from both countries had met with members of the scientific community to discuss areas most likely to cause difficulty. Once these had been determined, the scenario was written.

Captain Lyn Hein, Chief, Marine Safety Division, First Coast Guard District, who was also a participant, was pleased at the way the exercise went. He noted that a number of issues were handled extremely well, especially the utilization of dispersants, and thought there would be no problem with coordination in the event of a real disaster.

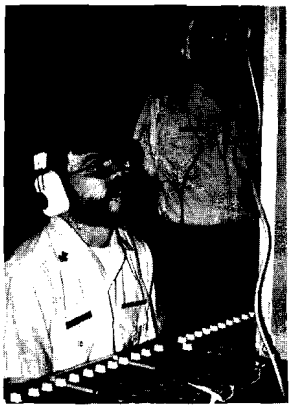
Ken Curran, Regional Director of the Canadian Coast Guard, was exuberant over the fact that no distinction had been made as to whether someone was Canadian or American. He felt this greatly facilitated the efforts of all those involved. Curran did say that better relationships should be established with environmental groups and that he was looking forward to working with these groups in the future.

Other comments made during the critique indicated that a great deal had been learned during the exercise. Some areas needed attention, but the problems were not insurmountable.

Commander Joseph Marotta, Assistant Chief, Marine Safety Division, First Coast Guard District, felt the exercise was well worth the effort. "It gave everyone a chance to see how other agencies work. Experience is a prime benefit when it comes to pollution." The exercise came at an opportune time, since U.S. and Canadian officials are currently updating the Joint Response Team Plan. Marotta went on to say that another meeting of the U.S./Canadian Joint Response Team would be held this fall and that its agenda would include a discussion of what had been learned during this exercise.

At the end of the debriefing, Rear Admiral Raymond H. Wood, Commander of the First Coast Guard District, presented the Coast Guard Achievement Medal to Lieutenant (junior grade) John Stuart, Electronics Technician First Class Raymond G. MacLearn, Lieutenant Commander Anthony Regalbuto, and Commander Keith Pensom, all of MSO Portland. In addition, Admiral Wood presented the Coast Guard Commendation Medal to Lieutenant David Mogan, Marine Safety Detachment, Bucksport, Maine, a sub-unit of MSO Portland. Last November a real situation arose off the coast of Maine. Through swift action and precise planning, these five Coast Guardsmen prevented the grounding of the tanker CHRISTIAN F. REINAUER from becoming a major catastrophe.

The lessons learned during the exercise itself and the critique which followed made this a very good disaster indeed. ⚓



First Class Electronics Technician George Long (foreground) and Lieutenant Commander Roger Garlow (both from the U.S. Coast Guard Reserve Training Center) keep watch over the events taking place at the recent U.S./Canadian Joint Response Team Exercise.

Coast Guard Publications Currently Available

The following publications can be obtained by writing to: Commandant (G-CMA), U.S. Coast Guard, Washington, DC 20593:

CG-169	Navigation Rules, International—Inland (5-1-77)
CG-169-1	COLREGS Demarcation Lines (7-15-77)
CG-182-2	Specimen Examinations for Merchant Marine Engineer Licenses; First Assistant, 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-439	Bridge to Bridge Radiotelephone Communications (12-1-72)
CG-467	Specimen Examinations for Uninspected Towing Vessel Operators (10-1-74)
CG-486	Shippers Guide to Hazardous Materials Regulations (Water Mode) (8-77)
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)

The following publications can be obtained by writing to: Commandant (G-MHM), U.S. Coast Guard, Washington, DC 20593:

CG-474	When You Enter That Cargo Tank (3-76)
M16616.4	(Old CG-478) Liquefied Natural Gas, Views and Practices, Policy and Safety (3-80)
(No Number)	Handling Requirements for Vinyl Chloride (1979)
M16616.5	Safe Handling of Styrene (1980)

The following publications can be obtained by writing to: Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, or calling: (202) 783-3238. Please confirm availability and price with the Government Printing Office before placing your order.

CG-388	Chemical Data Guide for Bulk Shipment by Water (1976). Stock No. 050-012-00117-1
CG-515	Rules and Regulations for Foreign Vessels Operating in the Navigable Waters of the U.S. (12-1-77)
M3131.5	(Old CG-473) A Pocket Guide to Cold Water Survival

Chemical Hazards Response Information System

M16465.11	A Condensed Guide to Chemical Hazards (Manual 1). Contents Stock No.: 050-012-00146-4. Binder Stock No.: 050-012-00151-1.
M16465.12	Hazardous Chemical Data (Manual 2). Contents Stock No.: 050-012-00147-2. Binder Stock No.: 050-012-90251-8.
	Enclosure (1) to Manual 2. Graphs of Temperature Dependent Physical Properties. Contents Stock No.: 050-012-00158-8. Binder Stock No.: 050-012-90251-8.
M16465.13	Hazard Assessment Book (Manual 3). Contents Stock No.: 050-012-00160-0. Binder Stock No.: 050-012-90251-8.
M16465.14	Response Methods Handbook (Manual 4). Contents Stock No.: 050-012-00152-9. Binder Stock No.: 050-012-90251-8.

Revisions

Change 1 to M16465.11. Stock No.: 050-012-00162-6.

Change 2 to M16465.12. Stock No.: 050-012-00165-1.

Naphtha fumes in the pump engineroom on a tank barge exploded, causing fire, and subsequently re-exploded, causing damage to the vessel and injury to four persons.

The barge has a separate pump and engineroom and was carrying 16,000 barrels of naphtha at the time of the casualty. The cargo piping system can be separated to load or discharge two different cargoes simultaneously by use of a hammer block valve located in the pumproom. This valve must be either fully opened or fully closed. Any intermediate position will result in product being leaked through the valve body into the pumproom. For the sake of convenience, however, the crew of the vessel routinely cracked the valve to drain the hoses and pipe system into the pumproom bilges. This had been done on a previous trip.

On the day of the casualty, the vessel was being loaded with Grade B Naphtha. After approximately five hours of loading, the relief tankerman entered the pumproom for a routine inspection and found four feet of naphtha in the bilges. All systems were shut down. The tankerman previously on duty went to the engineroom and discovered naphtha leaking through the partially dissolved flax packing gland around the pump shaft.

The vessel was subsequently taken under tow to a tank cleaning facility, and vacuuming operations commenced four hours after the initial spill was noted. While one tankerman tended the hose inside the pumproom, the second was investigating for any ignition sources in the engineroom. Neither was equipped with oxygen breathing apparatus or any special clothing, despite the toxic hazards of naphtha. Nor were any port agencies or the local fire department notified of the proceedings. The "bomb" was set; all that was needed was for the fuse to be lit. This was soon to come. The tankerman in the engineroom noted that the shut-down solenoid for the generator was hot. To shut off power, he disconnected the case lead. When he did so, a spark occurred, igniting the fumes in the compartment. A low-level explosion followed by fire resulted. Both tankermen safely evacuated their spaces. The tankerman in the engineroom was severly burned and taken to a hospital. Personnel at the facility called the fire department.

When the firemen arrived, they were simply told that there was a fire in the engineroom of the barge. The hatch to the pumproom had been closed. Smoke was coming out of the engineroom's open hatch. As they prepared to enter, a second explosion occurred, blowing one fireman over the side and knocking down and burning two others.

All personnel were rescued and evacuated while a backup unit extinguished the fire using mechanical foam.

The source of the fuel in the pumproom was the failure of the tankerman to ensure that the hammer block valve was properly seated after he drained cargo from the hoses into the bilges on the previous voyage. As the level rose, naphtha partially dissolved the packing gland material, allowing cargo to enter the engineroom. The explosive atmosphere was ignited when the tankerman disconnected the wire to the solenoid.

A number of lessons can be learned from this casualty. Some thoughts for contemplation:

1. Use of the hammer block valve for a purpose other than intended was the event that started the chain of events leading up to this casualty. But, no matter when the valve is operated, it is the responsibility of the tankerman to ensure that it and the entire loading system are functioning properly.

2. Once the spill occurred, the following actions should have been taken:

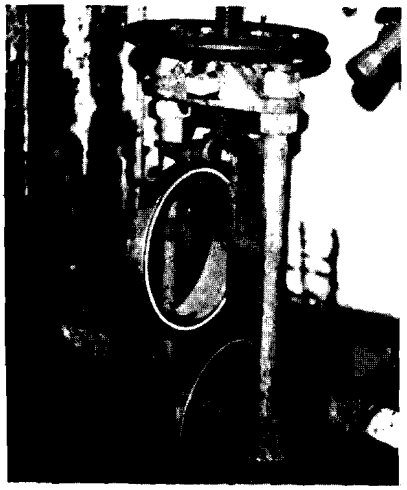
   a. Elimination of ignition sources.
   b. Reduction of the explosive atmosphere by any ventilation method that would not in itself constitute an ignition source.
   c. Notification of the Coast Guard, other port officials, and the fire department.
   d. Protection of personnel from toxic and explosive hazards.

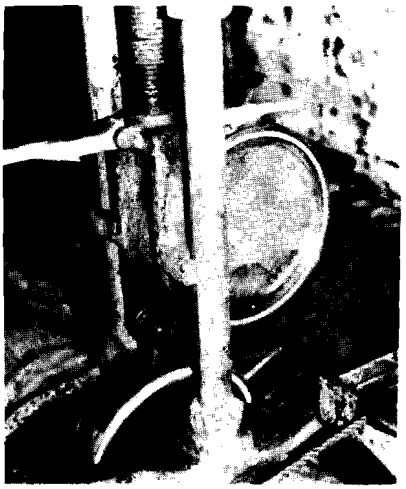
All persons must be thoroughly familiar with any plan of action, including the possible consequences of accidental ignition. Only then, with the concurrence and understanding of all persons involved, should the cleanup operations proceed. (Casualty Case #10001)

A review of the casualty case files indicates a potential safety problem that requires constant attention. Put simply, when heavy objects are lifted, they sometimes fall; slings, lines, hooks, booms, and machinery—even when they are rated at much higher capacity than the object being lifted—all fail. Therefore, it is essential that no personnel be allowed under the lifted object unless absolutely necessary. Heavy objects can also be moved horizontally, either by vessel motion or by cranes and winches. This is the same problem, just turned sideways. Again, personnel must be kept out of the line of travel of the heavy object.

The following are nine examples of casualties involving the transfer or movement of heavy objects. In some cases, no injuries resulted, but the message is still clear. In a few cases, individuals were injured or killed, even though they had been warned of the danger. "Yes, I hear you" is not good enough. MOVE!

1. Two drags were being operated from a scallop dragger (fishing vessel), one off each side. Each drag weighed about 3400 pounds. When a drag is hauled over the gunwale, the "hook man" goes out on deck and





A hammer block valve is basically a spectacle flange, so called because the two flanges on either side of a pivotal joint cause it to resemble a pair of eyeglasses. The valve must be either fully opened or fully closed. When the open flange, shown in a raised position, far left, is lowered into the valve body or line, product can flow through the system. To close the line, the open flange is raised fully out of the body and the closed flange, shown in the raised position, immediate left, flipped down. If it is not fully lowered, product will leak out of the valve body into the bilges. That is what happened in the case described on the preceding page.

attaches a hook from a boom to lift the drag onto the deck. Brackets on the bottom of the drag are angled so that it will tip inboard and rest horizontally on deck. In this type of operation, an open hook is usually used rather than the moused (safety latch) type. Each drag is lifted six to nine times during a six-hour watch. If the hook comes out before the drag is lowered to the horizontal position, the drag will tip over and fall to deck by itself. This happens once or twice each watch. The two drags may be lifted separately or simultaneously. On this summer day, with 15- to 25-knot winds and 4- to 5-foot seas, the hook man went on deck to remove twists in the falls attached to the starboard drag while the port drag was being lifted aboard. The winch operator told him to return to the safe area, but tension was suddenly relieved on the port drag, which unhooked and fell, crushing him to death. He also got hit in the head by the 85-pound block. The victim had made four previous trips of ten days each and had probably seen the drag fall over more than 100 times. (Casualty Case #06685)

2. The #6 anchor of a pipe-laying barge working in good weather in the Gulf of Mexico was observed to be dragging. Operations were initiated to bring it aboard so that it could be unfouled and reset properly. It was first lifted to the deck of a towing/supply vessel and then transferred to the deck of the barge. On the barge, an attempt was made to lay the anchor over with the flukes flat on the starboard side. The entangled pendant wire would not allow the flukes to lay over flat, however, so it was decided to flip the anchor over to port. A small manila tag line was attached to the pendant wire at the bottom of the anchor and secured to a cleat on deck. The heavy lift crane boom was moved to starboard. Instead of flipping, the anchor slid across the deck, unimpeded by the small tag line (a typical problem in this kind of operation). At that point, a rigger who had been standing a safe distance away behind some equipment walked across the work area. The anchor foreman saw what was happening and yelled at the rigger, telling him to run. The rigger ran first one way, then reversed and ran the other. The heavy crane operator also saw what was happening and started swinging the boom to port, but heavy cranes do not react instantly. The rigger was pinned to the port side rail by an anchor fluke and died later in the hospital from internal hemorrhage and irreversible shock. (#06606)

3. A section of 42-inch oil-well casing pipe cemented to a section of 20-inch oil-well casing pipe (total weight: 28,000 pounds) was being lowered to the deck of a supply vessel from a mobile offshore drilling unit. About three feet above deck, one hook of the sling broke, weight shifted, and the other leg of the sling broke. The casing glanced off the starboard rear deck and fell into the Gulf of Mexico. Fortunately, no one was injured, and the vessel was able to return to port without assistance. The sling was said to be in good condition when checked prior to the lift. (#00779)

4. A mobile offshore drilling unit was using a 40-ton crane to lift a 20,000-pound anchor from the deck of a towing/supply vessel when the starboard boom line parted. This caused the boom to collapse and the anchor and the boom to drop to the deck of the vessel. The anchor fell about three feet. Fortunately, the vessel was not seriously damaged. (#02146)

5. A large pipe barge was moored at dock in port. 575-foot lengths of 2 1/2-inch steel cable were being coiled for anchor buoys. A crane was being used to hoist one hundred feet of cable at a time and then slowly lower it to the deck while crew members formed coils. The cable was secured to the traveling block by a 1/2-inch chain; this, in turn, was secured to the cable with a stopper hitch and to the block with two overhand knots and then hooked into itself. This procedure had been used for nine months for many purposes with no problems. On this occasion the chain appears to have worked itself loose from the hook on the traveling block (it did not fail). The cable dropped on the crew, striking three crew members, one of whom died of head injuries. (#06081)

6. A section of oil-well pipe was being moved on board a shallow-water submersible drilling rig operat-

ing in place in the Gulf of Mexico. The pipe section was secured to the derrick hook by a chain wrapped around it twice and hooked back onto the standing (hauling) part. This rigging is often used for pipe with a large upset (expanded section) at the end. The pipe being lifted had only a small upset, and the chain slipped off and hit a man. The man died later of head injuries. He had not been wearing a hard hat, which might have saved his life, and he had been warned at least four times in the minutes before the accident to watch his head. There are no standards for lifting pipe, although a lifting sub (a screw-in attachment) is available. The operator of this rig now requires two half hitches and a safety knot for all pipe or tube lifting--the use of hooks was discontinued after this casualty. (#76611)

7. A section of drill pipe was being lifted from the pipe deck up to the drilling floor of a drilling barge operating on the Gulf Coast. The pipe was secured to the derrick hook by manila line with two half hitches about three to four inches from the collar (the upset, or expanded section). The manila line may not have been secured well, because it came off the end of the pipe, which fell and hit a floorhand. The man died shortly afterwards of a broken neck. (#06044).

8. A forklift was lowered into the hold of a break-bulk freighter to work cargo. It was lowered by four sling hooks, and one jammed. The senior holdman instructed the winch operator to put tension on the jammed hook to release it, a procedure which had been used effectively before. The winch operator had a clear view of the hold. Even though a longshoreman was standing next to the forklift on the side opposite the hook, the winch operator applied tension. The hook did not release, and the forklift tipped over and crushed the longshoreman to death.

9. In late December, a supply vessel moored port side to a production platform in the Gulf of Mexico to unload a wire line machine. Wire line company personnel removed the tie-down lines from the equipment, and the vessel operator told his two crewmen to go forward and get clear of the machine. The vessel was rolling with the 6- to 8-foot swells, and the vessel operator recognized the danger. Just at that moment the vessel took a large roll, and the machine shifted across the deck and pinned one crewman against the pipe rail. The crewman died later of massive internal injuries.

This safety poster was sent in by reader Donald E. Brookover of Thorndale, Pennsylvania. Are there are any other artists among our readers? I would welcome your contributions--Ed.

Carbon Disulfide: CS_2

synonym:	carbon bisulfide
Physical Properties	
boiling point:	46.3°C (115°F)
freezing point:	-111.6°C (-168.9°F)
vapor pressure at 46°C (115°F):	1 atm (14.7 psia)
Threshold Limit Values	
time weighted average:	10 ppm (0.0010%)
short term exposure limit:	none established
Flammability Limits in Air	
lower flammability limit:	1.3%
upper flammability limit:	50.5%
Combustion Properties	
flash point (closed cup):	-30°C (-22°F)
autoignition temperature:	100°C (212° F)
Densities	
liquid (water = 1.0):	1.26
vapor (air = 1.0):	2.6
Identifiers	
U.N. Number:	1131
CHRIS Code:	CBB

The danger of carbon disulfide lies in the fact that the chemical is both flammable and toxic. In its liquid state (it is a liquid at room temperature), it is clear, heavier than water, and only slightly soluble in water. As a vapor, it has a mild, ethereal odor when pure but often has an unpleasant sulfurous smell when impure. The odor threshold is a mere 0.21 ppm, and the smell of carbon disulfide should thus give ample warning of a harmful vapor concentration. Such a warning is not foolproof, however. The vapor gradually deadens one's sense of smell. Anyone who has noticed the smell of carbon disulfide and then finds he can no longer detect it could be in trouble.

Carbon disulfide is not found in nature. It was first produced commercially (from charcoal and sulfur) around 1880. Since 1950 processes involving a hydrocarbon-sulfur reaction have been used. Carbon disulfide is used primarily in the production of such materials as rayon, carbon tetrachloride, and cellophane film. Smaller amounts—we are still speaking in terms of tons—are used for such purposes as fresh fruit preservation and petroleum refining.

Storing and handling carbon disulfide is a delicate business. Because of the danger of corrosion, tank fittings and valves made of copper and copper alloys should not be used. Steel is an excellent material, not only for the tanks and pipes, but for the fittings as well. As shown above, carbon disulfide has a low flash point: -30°C (-22°F). The vapor is always flammable and toxic in confined spaces and is likely to be so in the open air as well. For that reason, a water or nitrogen blanket must be used to inhibit the formation of flammable vapor-air mixtures in stored carbon disulfide. Transfer of the chemical must be carried out by means of water or nitrogen displacement.

Carbon disulfide is highly toxic and, when inhaled, absorbed through the skin, or ingested, will attack the brain and nervous system. If spilled on the skin, it can penetrate to and dissolve subcutaneous fat, leading to skin cracking and dryness. The eyes are sensitive as well. Fortunately, carbon disulfide is not a carcinogen. Because of the chemical's toxicity, however, care should be taken to see that workers are not exposed to high concentrations. The concentration for a 60-minute exposure should not exceed 50 ppm, and that of a 10-minute exposure should be no higher than 200 ppm.

Carbon disulfide is a serious fire hazard. Its wide flammability range (any concentration between 1.3% and 50.5% is flammable) and its high volatility (the chemical boils at 46.3°C, or 115°F) mean that fires after cargo spills are likely. The low autoignition temperature, 100°C (212°F), means that materials, especially metals, heated by the fire can cause the vapors to reignite once the fire is extinguished. Steam lines, too, may cause carbon disulfide vapors to ignite. After a carbon disulfide fire has been extinguished, all heated surfaces should be cooled and the fuel blanketed with water. The Coast Guard is now doing a study on the fighting of carbon disulfide fires. The report should be available sometime this year.

Carbon disulfide is regulated by the Coast Guard (which designates it a cargo of particular hazard, or COPH), the Materials Transportation Bureau (which classifies it as a flammable liquid), the Environmental Protection Agency (which assigns it to Pollution Category D), and the Inter-Governmental Maritime Consultative Organization (which considers it a Category A pollutant).

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

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) Isomagnetic charts are

A. published by the Hydrographic Office.
B. published in five groups.
C. charts that show magnetic intensity for various regions of the world.
D. all of the above.

REFERENCE: Bowditch

(2) The part of a sextant mounted directly over the pivot of the index arm is the

A. index mirror.
B. horizon glass.
C. micrometer drum.
D. telescope.

REFERENCE: Bowditch

(3) A single vertical magnet placed underneath the compass in the binnacle is used to compensate for

A. the horizontal component of the permanent magnetism.
B. the vessel's inclination from the vertical.
C. induced magnetism in the horizontal soft iron.
D. induced magnetism in the vertical soft iron.

REFERENCE: Bowditch

(4) What is the name of the sextant altitude correction that compensates for the fact that the limb, rather than the center, of the celestial body is placed on the horizon?

A. Augmentation
B. Semidiameter
C. Dip
D. Parallax

REFERENCE: Bowditch

(5) Magnetism is strongest in soft iron when

A. the long axis of the iron is perpendicular to the lines of force.
B. the long axis of the iron is parallel to the lines of force.
C. the iron is at a 45° angle to the lines of force.
D. none of the above, since the magnetic strength will not vary.

REFERENCE: Bowditch

ENGINEER

(1) The hazards associated with the handling of petroleum products include

I. explosion or fire
II. asphyxiation

A. I only
B. II only
C. Both I and II
D. Neither I nor II

REFERENCE: MarAd Safety

(2) A laboratory analysis has determined that the neutralization number of lube oil in a steam turbine is higher than normal but is still within allowable limits. To reduce the neutralization number of the oil, you should

A. centrifuge the oil until it is clarified.
B. add new oil to the oil in the turbine.
C. heat the oil to $82^{\circ}C$ ($180^{\circ}F$) for two hours.
D. add a phosphate-mineral oil solution.

REFERENCE: Gunther

(3) You should check-run a hydraulic anchor windlass during long periods of inactivity to

A. prevent chemical breakdown of hydraulic fluid.
B. remove condensation from the fluid reservoir.
C. prevent the anchor from seizing in the hawse pipe.
D. renew the internal coating of lubrication.

REFERENCE: Engineman 3 and 2

(4) In a Roots-type rotary blower, the volume of air delivered is directly proportional to

A. engine speed.
B. engine load.
C. brake horsepower.
D. brake specific fuel consumption.

REFERENCE: Stinson

(5) If fire breaks out in the main propulsion motor, your first action should be

A. fight the fire with CO_2.
B. secure the motor-ventilating blowers.
C. maintain motor speed.
D. de-energize the motor.

REFERENCE: Harrington

ANSWERS

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

MERCHANT MARINE SAFETY PUBLICATIONS

In previous issues this list has included publications that were unavailable because they were being revised or reprinted. These publications are reprints of selected subchapters of the Code of Federal Regulations (CFR). The Superintendent of Documents publishes the CFR in yearly updated form. The CFRs are thus the best source for those needing up-to-date information on Coast Guard regulations. The price and availability of any desired volume can be obtained by calling (202) 783-3238 or writing: Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

Publications previously appearing on this page which do not fall into the category described above will henceforth be listed separately. That list will be published periodically; it appears for the first time in this issue, on page 49.

Listed below are the Code of Federal Regulations (CFR) subchapters covering Coast Guard regulations (Title 46, Chapter I). Chapter I comprises nine volumes. A desired volume should be ordered by referring to the parts it contains; for example, if marine engineering regulations (Subchapter F) are needed, 46 CFR Parts 41 to 69 (the third volume) should be ordered. The numbers shown in the "Coast Guard Equivalent" column refer to previous reprints of selected subchapters. See the chart below.

	Volume	Coast Guard Equivalent	Contents
1.	46 CFR Parts 1 to 29	None	Subchapter A—Procedures Applicable to the Public. Parts 1 to 9.
		CG-191	Subchapter B—Merchant Marine Officers and Seamen. Parts 10 to 16.
		CG-258	Subchapter C—Uninspected Vessels. Parts 24 to 29.
2.	46 CFR Parts 30 to 40	CG-123	Subchapter D—Tank Vessels. Parts 30 to 40.
3.	46 CFR Parts 41 to 69	CG-176	Subchapter E—Load Lines. Parts 42 to 46.
		CG-115	Subchapter F—Marine Engineering. Parts 50 to 64.
		None	Subchapter G—Documentation and Measurement of Vessels. Parts 66 to 69.
4.	46 CFR Parts 70 to 89	None	Subchapter H—Passenger Vessels. Parts 70 to 89.
5.	46 CFR Parts 90 to 109	CG-257	Subchapter I—Cargo and Miscellaneous Vessels. Parts 90 to 106.
		None	Subchapter I-A—Mobile Offshore Drilling Units. Parts 107 to 109.
6.	46 CFR Parts 110 to 139	CG-259	Subchapter J—Electrical Engineering. Parts 110 to 139.
7.	46 CFR Parts 140 to 155	None	Subchapter N—Dangerous Cargoes. Parts 146 to 149.
		None	Subchapter O—Certain Bulk Dangerous Cargoes. Parts 150 to 154.
8.	46 CFR Parts 156 to 165	CG-268	Subchapter P—Manning of Vessels. Part 157
		None	Subchapter Q—Specifications. Parts 160 to 165.
9.	46 CFR Parts 166 to 199	None	Subchapter R—Nautical Schools. Parts 166 to 168.
		CG-323	Subchapter T—Small Passenger Vessels (Under 100 Gross Tons). Parts 175 to 187.
		None	Subchapter U—Oceanographic Vessels. Parts 188 to 196.
		None	Subchapter V—Marine Occupational Safety and Health Standards. Part 197.

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