Proceedings
of the Marine Safety Council

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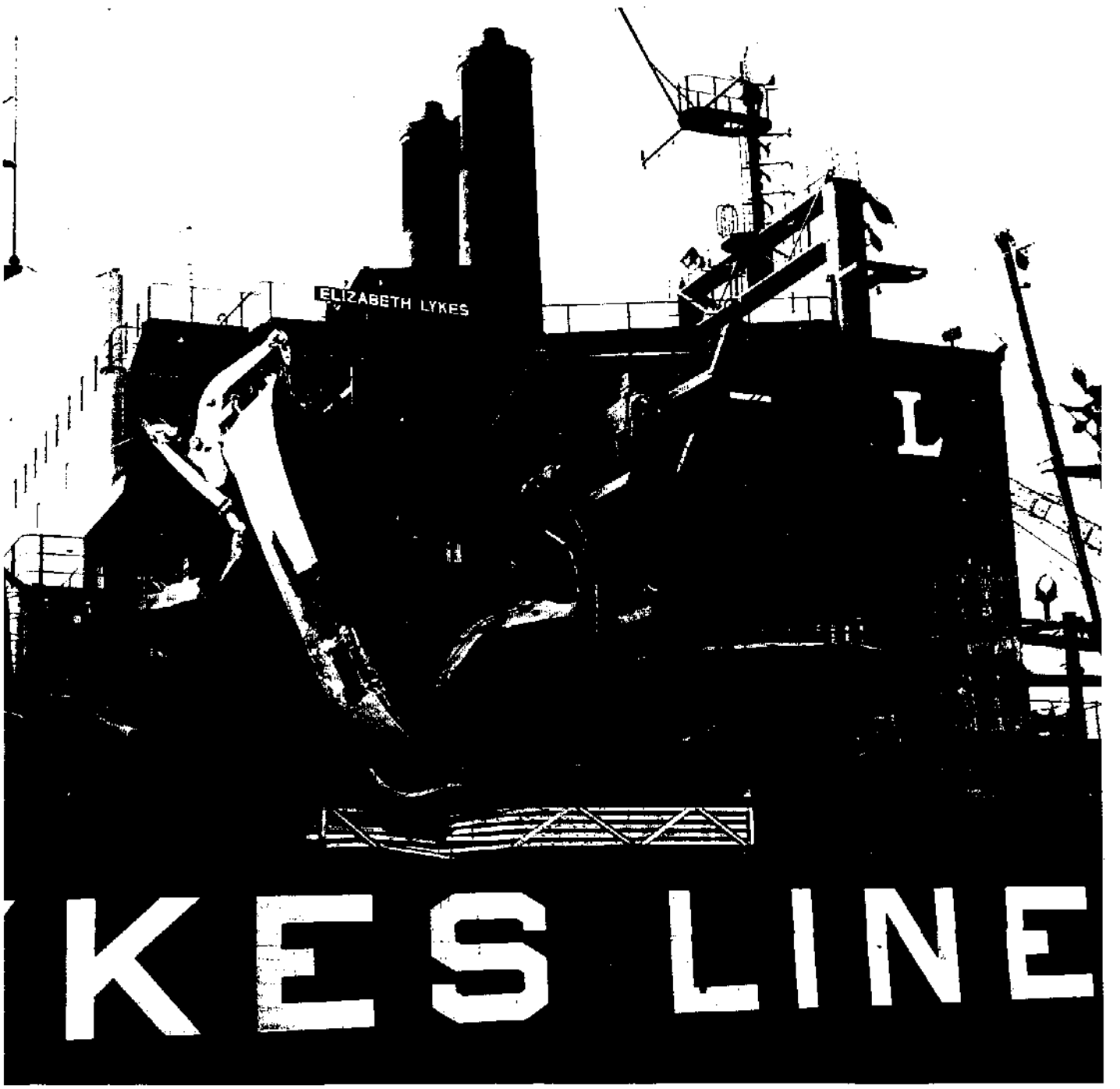

Proceedings
of the Marine Safety Council

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When you have finished reading this issue, please pass it on.

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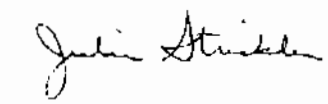
Since man first took to the waters, the weather has been one of his greatest enemies, as can be seen from the damage done by Hurricane Betsy to the ELIZABETH LYKES in 1965. To minimize costs, delays, and catastrophes, today's ocean carriers can turn to some of the most sophisticated equipment available. "Weathering the Seas," reprinted courtesy of Lykes Bros. Steamship Co., Inc., begins on page 235.

A Letter from the Editor

I'm sure all of you are familiar with the current drive to cut back Federal spending. Evidence of cost-cutting measures is everywhere. Notice, for example, the very magazine you are holding. The need to keep our expenses down has forced us to go to a cheaper paper stock. Cutbacks have also added new challenges to my job as an editor. I went to check on the progress of an article the other day, only to find that the author had been transferred to a different division and had given up plans of finishing the article. I went to check on a second article and was told by the author that because some of his fellow employees had been let go, he had taken on so much extra work he no longer had time to write the article. Scheduling publication dates for stories becomes a chancy proposition when the future of many Federal programs is in doubt. I had originally planned to save the article on the Fire and Safety Test Detachment ("Setting Fires for Safety, May 1982) for the October "Fire Prevention Week" issue. I was told, however, that the testing facility was in danger of being closed and might not be in existence by October. Since I thought the article was interesting and informative, I decided to run it right away. (Funding for the facility, by the way, has since been approved for another year.)

The continued existence of the *Proceedings* itself has been less than a foregone conclusion from time to time. Recently, the Office of Management and Budget has been closely examining all government publications. Although OMB routinely reviews publications, the latest review was a very special one. OMB was looking not only at costs and distribution but also at the purposes of a publication and its benefits to the public. I am glad to tell you that publication of the Proceedings has been approved by OMB through March 1985. Consequently, whatever problems I may have with disappearing authors and evaporating articles, at least the magazine will survive.



Julie Strickler
Editor

Maritime Sidelights

RORAC Members Announced

The Coast Guard has announced the names of the members appointed to RORAC, the Rules of the Road Advisory Council established in accordance with Public Law 96-591, the Inland Navigational Rules Act of 1980. The council's function will be to advise the Secretary of Transportation on matters relating to any major proposals for changes to the Inland Rules.

The members are: Gordon W. Paulsen, Haight, Gardner, Poor & Havens Law Firm; Lester C. Bedient, Crowley Maritime Corporation; Wayne Williams, Institute for Survival Technology at NOVA University, Robert Williams, North Carolina Seafood and Industrial Park; Eugene Dinnocenti, Twin County Construction Company; Lester Dutcher, SUNY Maritime College; Ed Jacobson, Ogle Bay Norton Company; Howard Krasnoff, Bluewater Yacht Builders, Ltd.; Paul M. Hammer, American Institute of Merchant Shipping; William R. Herder, Port of Newport; Warren A. Hines, Trial Attorney; Louis Kapelski, Delaware River Ferry Company; Charles F. Lehman, American Commercial Barge Line Company; G. James Lippmann, American Boat & Yacht Council; Harvey E. MacDermid, Lake Pilots Association, Inc.; Matthew B. McGowan, Santa Fe - Pomeroy, Inc.; Frank Fitzpatrick, Franklin Mint Corporation; Robert M. Lumpp, Great River Packet Company; Pat J. Neely, Jr., American Pilots Association; William L. Rich, Jr., International Organization of Masters, Mates, and Pilots, AFL-CIO; and Arthur J. Thomas, San Francisco Bar Pilots Association.

Maritime Advisory Committee Meets for First Time

The Maritime Advisory Committee held its first meeting on June 7 in Washington, DC. The committee, established earlier this year, will meet periodically upon the request of Maritime Administrator Harold E. Shear to discuss maritime problems, developments, and issues.

The 21 members of the committee represent a cross section of U.S.-flag ship owners and operators, shippers,

and representatives from shipyards and seagoing and shoreside labor. During the first meeting, each member provided a brief status report on his segment of the industry and its major problems and concerns.

Secretary of Transportation Drew Lewis, who delivered the opening remarks at the meeting, told the committee of the Reagan Administration's commitment to strengthening the U.S. merchant marine. He also reported on the status of a number of maritime proposals.

Proceedings on Hazardous Spills Available

The 1982 Hazardous Material Spills Conference, sponsored by the Coast Guard, the U.S. Environmental Protection Agency, the Chemical Manufacturers' Association, and the Bureau of Explosives, was held in Milwaukee, Wisconsin, April 19 - 22, 1982. The proceedings of the conference, the sixth such biennial national conference on this subject, are now available for purchase. Among the 81 papers included are case histories of emergency clean-ups and descriptions of recently developed techniques for preventing and mitigating spills.

The proceedings can be ordered from Government Institutes, Inc., P.O. Box 1096, Rockville, MD 20850; (301) 251-9250. The price of the 510-page volume is $48.50.

Seattle Hosts Northwest Divers Festival

The diving community of the Pacific Northwest will be putting on a diving show the weekend of October 8, 9, and 10 at the Highline Community College just outside of Seattle. Sponsored by the Northwest Diving Safety Council, a nonprofit local diving organization whose goal is to promote the sport of SCUBA diving and diving safety, this year's Festival will be a 3-day event designed for both divers and non-divers.

Scheduled for the Festival are lectures by divers, manufacturers, and medical experts in the field, manufacturers' exhibits, movies, "in-pool" workshops, free introductory SCUBA courses, an invitational underwater photographers' exhibition, an antique diving equipment display, a diving fashion show, presentation of the Northwest Diving Safety Award, CPR certification courses, a helicopter-assisted open-water rescue clinic, and the 8th Annual Northwest Sea-Story-Telling Contest.

Tickets are available through Rick Kaiser and the Northwest Diving Safety Council for $13.50 (advance) or $15.00 (at the door). For further information about the Festival, write to:

Northwest Divers Festival
3916 Dayton Avenue N.
Seattle, WA 98103

Reports Available from NTIS

The Maritime Administration (MarAd) has recently released a number of reports. All of the following can be ordered from the National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia 22161.

"Usage Pricing for Public Marine Terminal Facilities" contains the results of a 21-month joint MarAd-American Association of Port Authorities project. Seventeen coastal and Great Lakes ports participated in the study, which was conducted by the Applied Systems Institute, Inc., under a MarAd contract. The report focuses on the determination of dockage and wharfage tariff rates, rental prices for leased terminals, and rental prices for cranes and equipment. The order number for the report, which costs $22, is PB82-180878.

"Merchant Vessel Advanced Power Systems" is the result of a study identifying and evaluating highly advanced propulsion power plants with potential marine applications beyond the year 2000. The survey included advanced power plant designs for central station and industrial power plants and for transportation of vehicles. Each power plant concept was evaluated for potential application to a variety of hull types using available transmission systems and propulsion thrusters. The order number is PB82-185240, the price $18.

"A Study of Multimode Express Shipping" is a two-volume report on the potential commercial applications of high-speed and multimode ships operating at a minimum of 40 knots and capable of carrying at least 1,000 tons of cargo. These advanced special-purpose craft include hydrofoils, air cushion vehicles, surface effect ships, and small waterplane area twin hulls (SWATH). The study, prepared by IMA Resources, Inc., for MarAd, surveyed existing vessels and those in design stages, including buoyant lift, dynamic lift, and powered-lift. The report concludes that dynamic lift and powered-lift design vessels are most adaptable to commercial application. During the course of the study,

potential markets were identified, case studies in selected international and domestic applications were considered, and the economics of such craft was calculated. The order number for Volume I (the Final Report, costing $15) is PB82-179508. The order number for Volume II (the Appendices, costing $31.50) is PB82-180159.

Seamanship Trophy Awarded

Captain John J. Janus of Waterbury, Connecticut, has been awarded the 1982 American Merchant Marine Seamanship Trophy for the rescue of 10 survivors of a small foundering boat in the South China Sea on June 21, 1981.

The award was announced by ADM Harold E. Shear, USN (Ret.), Maritime Administrator and Chairman of the Trophy's Select Committee.

The small boat had departed the People's Republic of China with its occupants seeking political refuge in Taiwan. They were about 100 miles from their destination when they were hit by seas and winds generated by a distant typhoon.

Captain Janus' vessel, American President Lines' PRESIDENT McKINLEY, was en route to Pusan, Korea, from Hong Kong at about 12:30 a.m. when the small boat was sighted in distress on the starboard side. The night was very dark, and the winds were southwesterly at gale force. The general alarm was sounded, all hands went to emergency stations, and Captain Janus began to navigate his vessel to effect rescue. Displaying outstanding seamanship under every adverse weather condition, he expertly maneuvered the PRESIDENT McKINLEY alongside the floundering boat, and a pilot ladder was lowered so the survivors could be brought aboard.

This is the 16th Seamanship Trophy awarded. Last year the trophy went to Captain Arthur H. Fertig and the crew of the tanker WILLIAMSBURGH for the rescue of more than 450 passengers and crewmembers of the Dutch cruise ship PRINSENDAM, which burned and sank off the coast of Alaska in October 1980.

Nominations for the American Merchant Marine Seamanship Trophy are received on a continuous basis. The 1983 award will cover events occurring in 1982. Award criteria and information can be obtained from the Office of the Eastern Region Director, Maritime Administration, 26 Federal Plaza, 37th Floor, New York, New York 10278.

International Hydrographic Organization Meets

The International Hydrographic Organization (IHO) hosted its twelfth international conference April 20 - 30 in Monaco. The agenda was extensive and included chart specifications, international chart schemes, radio navigational warnings, special routing guides, a standard list of charts and publications proposed by the International Maritime Organization, and worldwide navigation systems.

The U.S., attending for the first time, was represented by a delegation consisting of officials from the National Oceanic and Atmospheric Administration's National Ocean Survey and the Defense Mapping Agency.

IHO is an intergovernmental body which serves as a forum for addressing oceanographic, hydrographic, and charting matters on the international level.

(Reprinted from the Activities Letter *of the American Institute of Merchant Shipping)*

Propeller Club Awards Prizes to Essay Contest Winners

Four college students have won cash prizes totaling $1,400.00 in the 1982 National Maritime Essay Contest for college students sponsored by The Propeller Club of the United States and its local clubs. Four others won Honorable Mention. The national prizes were presented by local clubs along with local prizes in connection with observance of National Maritime Day, May 21, 1982.

Winning 1st Prize (and $500.00) was Brian L. Cook, a student at the U.S. Merchant Marine Academy in Kings Point, New York. In second place (winning $400.00) was Matthew K. McKinney, Marshall University, Huntington, West Virginia. Luciene Litchfield, Maine Maritime Academy, Castine, Maine, won 3rd Prize ($300.00), and Elaine M. Saunders, the University of Maryland, College Park campus, won 4th Prize ($200.00).

Twelve College Student Propeller Clubs throughout the country participated in conducting this national essay contest, which aims to develop interest in marine transportation careers and the maritime industry generally and emphasizes the need for a strong American Merchant Marine to ensure national security and economic prosperity.

The following items of general interest were published between May 21, 1982, and June 18, 1982:

Final rules: CGD 05-81-16R Northwest Harbor, Baltimore, Maryland, Anchorage Regulations, May 27, 1982. CGD 09-82-08 Regatta Regulations B & T Icebreaker Regatta, Niagara River, New York, May 27, 1982. CGD 13-82-062 Drawbridge Operation Regulations; Willamette River, Oregon, June 7, 1982. CGD 81-038A Visual Distress Signal Equipment Requirements, June 7, 1982. CGD 05-81-10R Drawbridge Operation Regulations; Roanoke River, North Carolina, June 7, 1982. CGD 81-039 Merchant Marine Technical Branch, Fifth Coast Guard District, Disestablishment of, June 7, 1982. CGD 07-82-01 Drawbridge Operation Regulations; Garrison Channel, Tampa, Florida, June 7, 1982. CGD 09-82-15 Regatta Regulations; Duluth Harbor Fireworks Display, Duluth, Minnesota, June 10, 1982. CGD 09-82-16 Regatta Regulations; Wishing Well Classic Regatta, Lake St. Clair, Michigan, June 10, 1982. CGD 09-82-11 Regatta Regulations; International Freedom Festival Regatta, Detroit River, Michigan, June 10, 1982. CGD 09-82-12 Regatta Regulations; Stroh Gold Cup Regatta, Detroit River, Michigan, June 10, 1982. CGD 80-143 Load Line Assignment and Surveys; Fees and Other Expenses, June 10, 1982. CGD 81-063 Correction; Delegation of Authority Under the Regulatory Flexibility Act, June 14, 1982. CGD 13-82-02 Security Zone; Strait of Juan de Fuca and Hood Canal, Washington, June 14, 1982. CGD 03-82-02 Drawbridge Operation Regulations; Lemon Creek, New York; Revocation, June 17, 1982. CGD 09-82-021 Drawbridge Operation Regulations; Genesee River, New York, June 17, 1982. CGD 03-79-014 Drawbridge Operation Regulations; Great Channel, New Jersey, June 17, 1982.

Notices of proposed rulemaking (NPRMs): CGD 81-058 Boundary Lines; Seagoing Barge Act, June 7, 1982. CGD 09-82-06 Special Anchorage Area, Lake Betsie, Frankfurt, Michigan, June 17, 1982. CGD 81-080 Traffic Separation Scheme, June 17, 1982.

Notices: CGD 82-053 Additional Loran-C Coverage in Prince William Sound, Alaska, Notice of Public Meeting, May 24, 1982. CGD 82-059 Rules of the Road Advisory Council, Notice of Establishment, May 27, 1982. CGD 82-060 Proposed Bridge Across the Danvers River Between Salem and Beverly, Massachusetts, Notice of Public Meeting, May 27, 1982. CGD 82-062 Rules of the Road Advisory Council, Notice of Public Hearing, June 7, 1982. CGD 75-001 Elevators and Dumbwaiters, Notice of Termination of Rulemaking, June 7, 1982. CGD 74-284 Fixed Fire Extinguishing Systems, Notice of Comment Period Extension, June 10, 1982.

Questions concerning regulatory dockets should be directed to the Marine Safety Council (G-CMC), U.S. Coast Guard, Washington, DC 20593; (202) 426-1477.

* * *

Project to Update Waterfront Facilities Regulations Withdrawn (CGD 77-128)

The Coast Guard has withdrawn its proposal to revise its waterfront facility regulations. This project would have updated the regulations and reorganized Part 126 of Title 33 of the Code of Federal Regulations. An advance notice of proposed rulemaking to solicit comments was published on April 12, 1978. After reviewing the more than 280 written comments received and the input from public hearings, the Coast Guard decided against revising the regulations at this time.

For further information, contact LCDR Gary Gregory, U.S. Coast Guard (G-WPE-3), Washington, DC 20593; (202) 755-1354.

Project on Hazardous Wastes Withdrawn (CGD 79-095)

The Coast Guard published an NPRM on October 14, 1980, notifying the public of its intent to incorporate Environmental Protection Agency (EPA) requirements for shippers of hazardous wastes in bulk by water in Title 46 of the Code of Federal Regulations (which covers shipping regulations). Under these requirements, the operators of vessels transporting such cargo must have ID numbers, carry cargo manifests, report spills, and keep the hazardous waste manifests for three years. The Coast Guard has decided that the benefits did not outweigh the cost of

publishing the regulations and the potential for conflicts with the EPA regulations.

For further information, contact Robert M. Query, U.S. Coast Guard (G-MTH/14), Washington, DC 20593; (202) 426-1217.

Guidelines Developed for Control of Noise Aboard Ship (CGD 79-134)

On June 16, 1980, the Coast Guard published a notice in the FEDERAL REGISTER telling the public of its intent to promulgate shipboard noise abatement regulations. The Coast Guard has been studying the health and safety problems associated with high noise levels aboard ship for several years. Public hearings were held and input from the Towing Safety Advisory Committee obtained. Based on the comments received, the Coast Guard decided to address the problem by non-regulatory means. It has now issued to the maritime industry a set of recommended guidelines for protecting crewmembers from the hazards associated with high noise levels.

The guidelines are contained in Navigation and Vessel Inspection Circular (NVC) 12-82, "Recommendations on Control of Excessive Noise," and are considered applicable to all vessels and offshore units inspected by the Coast Guard. They are also regarded as appropriate for uninspected commercial vessels for owners desiring an alternative to the noise regulations of the Occupational Safety and Health Administration (OSHA).

Essentially, the NVC recommends a limit on the cumulative daily noise exposure of each crewmember and a program of periodic hearing tests for each crewmember exposed to noise above a certain level. It also recommends maximum noise levels for berthing, mess, and recreation spaces and includes guidelines for related matters dealing with noise control practices and a hearing conservation program. Copies of the NVC are available at the following address:

Commandant (G-MP-4/14)
U.S. Coast Guard
Washington, DC 20593

For further information, contact LT Robert Murray, U.S. Coast Guard (G-MVI-2/24), Washington, DC 20593; (202) 426-2183.

Memorandum of Understanding Between the U.S. Coast Guard and the American Bureau of Shipping Issued

The Memorandum of Understanding published June 10, 1982, sets forth guidelines for cooperation between the Coast Guard and the American Bureau of Shipping in the review and inspection of vessels certified by the Coast Guard. An earlier Memorandum of Understanding published on June 18, 1981, is superseded by this one.

Actions of the Marine Safety Council

June Meeting

The Council discussed five items of general interest at the June meeting and approved each of the items at the work-plan stage. This means that proposed rules will be published in the FEDERAL REGISTER and public comments will be solicited.

CGD 82-046 Regulated Navigation Area, San Pedro Bay

Several collisions and near collisions have occurred in the vicinity of the Los Angeles Pilot Boarding Area. This situation is caused by vessels heading north through the Pilot Area after departing from Long Beach. In order to reduce the potential for collisions, the Captain of the Port Los Angeles-Long Beach issued a COTP order in 1978 on an emergency basis without public comment or review. The COTP order has worked well, and this project would place it in the Code of Federal Regulations to create permanent passive vessel traffic management procedures.

An NPRM should be issued late this summer.

CGD 82-054 Aids to Navigation on Outer Continental Shelf (OCS) Facilities

The purpose of this project is to create realistic standard nationwide light-intensity requirements for OCS facilities. Each time a manufacturer develops new equipment, the Coast Guard must perform burdensome, time-consuming calculations to determine if the lighting equipment meets the requirements of Part 67 of Title 33 of the Code of Federal Regulations (33 CFR 67). Regulations providing for manufacturer certification of lighting equipment would reduce both the burden to the

Coast Guard and delay to the manufacturer.

In addition, the rules would require conformity with the Maritime Buoyage System recommended by the International Association of Lighthouse Authorities. This would mean, among other things, changing the light rhythm characteristics of lights marking OCS facilities from "quick-flashing" to Morse "U." This change is scheduled to be phased in over six years so that replacement costs can be kept down.

An NPRM should be published late this summer.

CGD 82-055 Navigation Safety Regulations

The Navigation Safety Regulations were finalized on January 31, 1977. Since that time, several additions to the regulations have been made, necessitated by the Port and Tanker Safety Act (PTSA), the Safety of Life at Sea Convention (SOLAS), and the Tanker Safety and Pollution Prevention Conference (TSPP). These additions included carriage requirements for electronic position-fixing equipment on vessels 1,600 gross tons (grt) and more, automatic radar plotting aids (ARPA) and second radar sets on tankers, and improved tanker steering gear standards.

CGD 82-055 proposes to revise 33 CFR 164, which has been left rather disorganized by the numerous changes. The TSPP called for additional steering gear drills and tests on vessels 1,600 grt and more; this rule would incorporate those requirements. The requirements for carriage of charts and publications have been found to be enforced inconsistently, with some units issuing large numbers of citations for violations and others issuing virtually none (a total of about 1,300 chart and publication violation citations were issued in 1980 and about 900 in 1981). This rule would redefine the requirements for carriage of charts and publications, thus easing both enforcement and compliance. The proposed change would also redefine the requirements for position fixing and the use of the automatic pilot in U.S. waters, would allow the use of slow in lieu of half speed on the posted bridge maneuvering data, and would clarify COTP authorization to grant deviations to the rules to exclude those items specifically mandated by the PTSA.

An NPRM will be issued early this fall.

CGD 82-058 Safety Standards for Self-Propelled Vessels Carrying Bulk Liquefied Gases

In 1979 the Coast Guard published regulations for liquefied gas carriers implementing the recommendations of the Inter-Governmental Maritime Consultative Organization* as set forth in its Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk. The Gas Code has since been amended three times. The three amendments include:

- corrections and clarifications of current Gas Code standards,
- incorporation of standards for new or novel containment system designs,
- improvement of the carriage requirements for several of the more hazardous cargoes, and
- expansion of the list of chemicals to which the Gas Code applies.

The Coast Guard considers these amendments vital to the safe transport of liquefied gases. The United States participated very actively in their development and in many cases initiated consideration of these amendments. It is important now to make U.S. regulations compatible with the accepted international standards. This project proposes to do that by incorporating the amendments into the Code of Federal Regulations.

An NPRM should be issued the first of next year.

CGD 82-067 Implementation of Outstanding MARPOL 73/78 Provisions for Vessels Other Than Tank Vessels

This work plan proposes a regulatory project to amend 33 CFR 151 and 33 CFR 155 for the purpose of implementing the pollution prevention requirements of the International Convention for the Prevention of Pollution from Ships, 1973 and the Protocol of 1978 (known collectively as MARPOL 73/78). It would also revise superseded sections of the Code of Federal Regulations. These changes would be effective at the time MARPOL 73/78 enters into force. Provisions to be implemented include requirements for oil-water separating equipment on ships and drilling rigs, International Oil Pollution Prevention Certificates, and a revised Oil Record Book.

An NPRM is scheduled for spring 1983. ‡

* renamed the International Maritime Organization on May 22, 1982

Gracey Takes the Helm

ADM James S. Gracey was sworn in May 27 as the 17th Commandant of the Coast Guard. He succeeds ADM John B. Hayes, who is retiring after 36 years of service. The change-of-command ceremony was held aboard the Coast Guard Cutter ALERT at the Washington Navy Yard in Washington, DC.

ADM Gracey is a 33-year veteran of the Coast Guard. He entered the service in 1945 as a cadet at the Coast Guard Academy in New London, Connecticut. In the course of his career he has headed the Coast Guard's two largest commands, the Atlantic Area, headquartered in New York City, and the Pacific Area, headquartered in San Francisco.

Other tours of duty include three years as Commander of the Ninth Coast Guard District (the Great Lakes District), headquartered in Cleveland, Ohio, and service as Chief of Staff at Coast Guard Headquarters in Washington, DC.

Admirals Gracey and Hayes salute during the change-of-command ceremony.

A native of Needham, Massachusetts, ADM Gracey holds a Bachelor of Science degree from the Coast Guard Academy and a Master of Business Administration degree from Harvard.

While serving in a wide variety of assignments, including command of the Cutter MARIPOSA, ADM Gracey has earned the Distinguished Service Medal, the Legion of Merit (twice), the Secretary of Treasury Achievement Medal, a U.S. Public Health Service Citation, and a number of other awards.

He is married to the former Dorcas R. Neal of Needham, Massachusetts, a graduate of Middlebury College and the University of Maryland Graduate School of Education. They have three children—Kevin, Cheryl, and Pamela. Married in 1949, the couple has served in duty stations from Portland, Maine, to Yakutat, Alaska, and has traveled widely overseas representing the U.S. Coast Guard. ‡

378-067 O - 82 - 2

Plotting the Course of the Rules of the Road

by Charles F. Lehman

The following article has been adapted from "The Unruly History of the Rules of the Road," an article Mr. Lehman prepared for the December 1981 issue of the Proceedings *of the U.S. Naval Institute;*

Upon hearing the term "rules of the road," a non-mariner might think of frustrated vacationers and truck drivers jockeying for position on a much-traveled highway. To a mariner, or anyone involved in the business of transporting goods on water, the rules of the road are as familiar as the story of the Ark. The story of how they came to us may not be nearly as familiar, however.

Laws governing admiralty go back to the time vessels first plied the seas. Jason and the Argonauts had to observe navigation customs in their mythical adventures, as did the Trojans on the expeditions chronicled in the *Iliad* and the *Odyssey*. Phoenician traders, seafaring Polynesians, even the plundering Vikings had to suffer the consequences of not obeying admiralty laws. Today the issue has become even more important and wide-ranging, since we are now faced with the historically unique phenomenon of 350,000-ton supertankers traversing the globe.

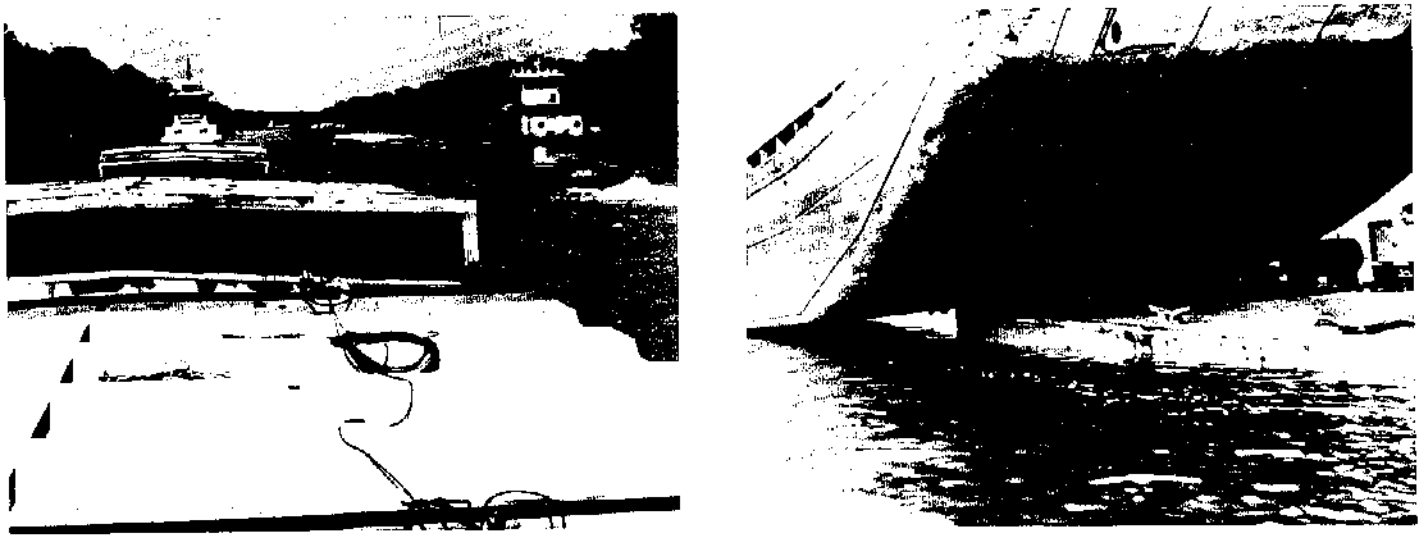
Charles F. Lehman is vice president of the American Commercial Barge Line Company of Jeffersonville, Indiana. He has served as a pilot and master of towboats operating on the inland waters and Western rivers of the United States and is a member of the Rules of the Road Advisory Council.

Internationally agreed upon rules are a fairly recent development, however. In the past, the different sets of navigation customs were applicable only within certain spheres of influence. Authority and power dictated the extent of those spheres. These rules were not usually written down, which makes plotting their history virtually impossible. The first comprehensive set of written rules originated in the 12th century, when Eleanor of Aquitaine, on the Island of Oleron, took an interest in the various customs that prevailed among seafarers and had them put into writing. (Eleanor, Queen of France under Louis VII, later Queen of England under Henry VI, and the mother of Richard the Lion-Hearted, was the most famous woman of her day.) The Laws of Oleron, as they became known, are generally regarded as the world's first written code of admiralty laws (except for some fragments of Rhodian Law dating back to 900 B.C.). The 12th-century code dealt with the master, crew, cargo, anchorages, liability, wages, contracts, punishment, fishing, and pilotage, among other things, and penalties could be severe. Regarding the failure of pilots to perform their duties, Rule 23 said in part:

> "If a pilot undertakes the Conduct of a vessel . . . and fail of his Duty therein . . . and the Merchants Sustain Damage thereby, he shall be Obliged to make full Satisfaction for same . . . and if not, lose his Head."

(Just imagine if the Coast Guard had authority to mete out that type of punishment today!)

The Laws of Oleron and, later, the Laws of Wisbuy, a similar set of laws used in the Baltic Sea area, along with the Consolato del Mare



Right and wrong: left, adherence to the Rules of the Road enables two barge chains in the Gulf Intracoastal Canal to meet and pass each other without incident. Right, failure to observe the rules resulted in a collision between these two barges on the Upper Mississippi.

(used in the Mediterranean states in the 14th century), determined many of the admiralty controversies of the time. Although they were quite extensive for that purpose, they did not address the problem of avoiding collisions. Vessel-to-vessel encounters were haphazard at best, with no required duties between vessels approaching one another.

Perhaps one reason for this cavalier attitude is that in these early days, when only hand-powered and sailing vessels plied the seas, the consequences of a collision were rarely dire, except in cases where acts of aggression took place (in which case navigation customs were not observed anyway). With the advent of the steamboat in the late 1700s, however, the possibilities for serious mishaps increased radically. Still, development of a body of law and regulations for collision avoidance was slow to follow, and when such such laws did develop they were often incomplete and confusing.

Signal lights imply a degree of collision protection because they give an indication of a vessel's location, direction of movement, and speed at times of darkness, the period of greatest danger. Prior to 1838, however, there were no statutes in the United States regulating rules requiring the carrying of signal lights.* The admiralty courts generally held, however, that in the case of a collision when one boat carried a light and the other did not, the one without would be treated as the wrongdoer. This was one of a number of collision-prevention rules that resulted from court cases. Since there were no established national laws, rules developed from the "custom and practice" of pilots.

Congress took note of the courts' decisions and passed the Act of 1838, the primary purpose of which was to assure better security for the lives of passengers on board vessels propelled by steam. One of its provisions was the first U.S. requirement for a navigation light: every steamboat running between sunset and sunrise had to carry one or more signal lights that could be seen by other boats navigating in the same waters. No mention was made of color or brightness or where or how such lights should be located on the vessel.

In 1849, Congress passed a more definitive law which required lights for sailboats and also for power-driven vessels. This Act stated in part:

> ". . . steamboats and propellers shall carry on the stem, or as far forward as possible, a triangular light, at an angle of about sixty degrees with the horizon, and on the starboard side a light shaded green, and on the larboard side red; said lights shall be

* Editor's note: For readers who may be unfamiliar with the subtleties of U.S. law, statutes are laws enacted by Congress. Regulations are promulgated by Federal agencies to implement the statutes.

furnished with reflectors, &c., complete, and of a size to insure a good and sufficient light . . ."

In this period of the early 1800s, a number of local navigation rules were enacted by numerous cities and states in response to the many casualties occurring. Naturally, this created navigational nightmares for mariners, since there was often no semblance of uniformity or consistency between local rules.

Between 1810 and 1850 there were recorded on the river system 1,070 accidents resulting in the total destruction of the vessels involved. During this time, more than 4,000 persons lost their lives on steamboats. Many of these vessels were destroyed by fires and boiler explosions, but 45 were lost because of collisions.

Congress had been aware for many years that lives and property were being lost because of steamboat mishaps. Among the more horrendous examples were the following cases:

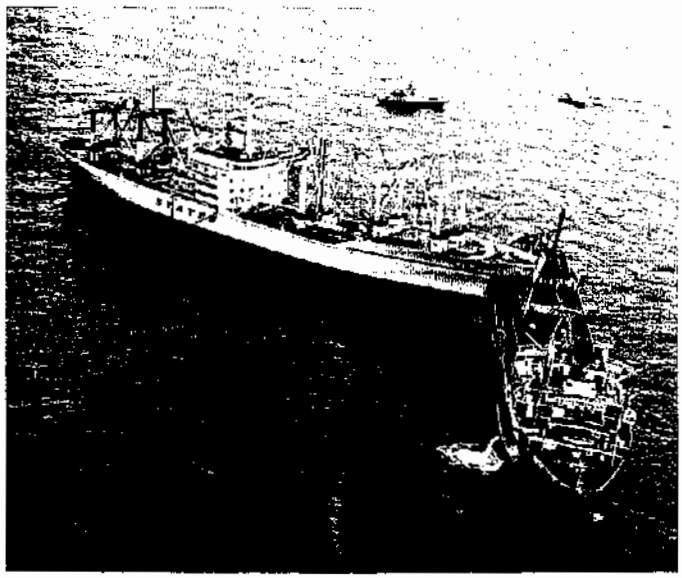
- In 1838 the boilers of the MOSELLE blew up while the vessel was near Cincinnati. Over 150 lives were lost. Less than a week before the MOSELLE exploded on the Ohio River, the steamer ORONOKO had blown up on the Mississippi River above Vicksburg, resulting in the deaths of nearly a hundred persons. The MOSELLE accident was the impetus for passage of the largely ineffective Act of 1838.

- In 1841 fire destroyed the steamer ERIE on the Great Lake for which the vessel was named. Over 175 persons died.

- In November 1846 there was a collision between the steamers SULTANA and MARIA below Natchez, Mississippi. The MARIA sank within five minutes. Approximately 30 persons perished in the mishap.

- In 1847 the PHOENIX caught fire on Lake Michigan near Sheboygan. Over 150 lives were lost. Only about one-third of the persons aboard were saved.

It was the proliferation of accidents, as well as the Federal courts' practice of holding state navigational safety laws void except with respect to vessels on strictly intrastate voyages that finally led to the realization that it was necessary to take action on the Federal level.



The Rules of the Road were developed to prevent collisions such as this one between two vessels in the Strait of Juan de Fuca.

In 1852 Congress passed the Steamboat Inspection Act. Generally, this Act set forth stringent equipment, cargo inspection, and licensing criteria for steamboats and crews. It also set up a Board of Supervisory Inspectors under the Treasury Department and, under Section 29 of the Act, required the Supervisors to establish ". . . such rules and regulations to be observed by all such vessels in passing each other, as they shall from time to time deem necessary for safety."

In 1858 the Board issued a set of Rules and Regulations for the Government of Pilots. These rules required the use of whistle signals to indicate intent in meeting, crossing, and overtaking, for navigating in fog and around blind bends, and to indicate danger. These rules formed the first U.S. system of passing signals for vessels on inland waterways.

Meanwhile, across the sea, similar conditions had prompted the British Parliament in 1846 to give the Crown authority to issue regulations governing the prevention of collisions. Though individual special statutes were enacted prescribing rules for specific areas and cases, no uniform or multinational code was established until 1863, when Great Britain and France implemented similar rules for their waters. Britain and France encouraged the other maritime countries to adhere to the rules as well, sending each country a copy and pointing out the importance of establishing rules which were consistent and uniform, with-

out distinction of flag or of place, and had the force of international maritime law.

In response to this action, a bill similar to the English code was introduced in the House of Representatives in early 1864. It was duly passed and signed into law by President Abraham Lincoln on April 29 of that year to become effective on September 1.

For the first time, the United States, along with other nations of the world, had a set of rules for preventing collisions at sea. These rules were applicable on the high seas as well as on inland waters. The United States, you will remember, had already made some provision for preventing collisions on inland waters in the rules authorized by the Steamboat Inspection Act of 1852. Since they did not conflict, the pilot rules were used to supplement the 1864 code.

For vessels meeting head-on, the rules required that each vessel port its helm, which, in effect, altered its course to starboard so that each vessel could pass to the port side of the other. This right-hand rule has always been the international nautical code. (It is interesting to note that the English rule of the road on land is to go left, even though England pioneered the international maritime laws.)

The law passed by Congress in 1864 gave the U.S., in effect, a set of unified rules. These rules applied to all vessels in all waters and stayed in effect until Congressional enactment of the International Rules of 1885. The latter were limited to the high seas and coastal waters because Congress included a constraining phrase stipulating that

> "Nothing in these rules shall interfere with the operation of a special rule, duly made by local authority, relative to the navigation of any harbor, river, or inland navigation."

This left the 1864 rules and the pilot rules of the Board of Supervisory Inspectors in effect on our inland waters.

It was at this time that the division of rules began taking place in our country. The United States now had two sets of rules for its vessels --one set for vessels on inland waters and another set for those on international waters. In the succeeding years, Congress enacted "special rules" relating to harbor, river, and inland navigation.

Although extensive in their requirements for lights and conduct in meeting situations, the international rules developed in the 1860s still had not provided for whistle signals, except for the sounding of a steam whistle at intervals of not more than one minute when a vessel was underway in fog or thick weather.

The International Rules of 1885 finally recognized the use of sound signals to indicate the direction of a course change a vessel was taking. Because of the permissive language of the law enacting the rules, however, sound signals were not mandatory. The rules merely stated that a steamship might indicate course change on its steam whistle. The internationally used signals were those of "action": a vessel sounded its whistle to indicate in what direction it would be altering its course. On United States inland waters, signals of "intent and reply" were used: a vessel would sound a signal to indicate on which side it intended to pass another, and the second vessel would answer with a like signal if in agreement.

There were some inconsistencies in the 1885 rules which were revealed by various judicial decisions. In response, Congress authorized the appointment of delegates to an International Marine Conference which was held in Washington, DC, in October 1889. The Conference was attended by representatives of the world's maritime nations. The rules the delegates adopted (the International Rules for Preventing Collisions at Sea) became law in the United

Some years after the English code was passed, A. P. Herbert, in his book *Uncommon Law*, described a rather humorous apocryphal lawsuit on the subject of the righthand rule. It seems a Mr. R. was driving his motorcar in England along the Chiswick Mall on the landward, or left, and, therefore, shallow side of a road flooded by the tide. He met a Mr. H. paddling a small boat from the opposite direction. Mr. H., as marine regulations required, went to starboard, forcing the motorcar to also go to his starboard, or right, into deeper water. This caused Mr. R.'s engine to stop. The court, accepting Mr. H.'s argument that when a tide covers a road it becomes part of the tideway, deemed the roadway navigable and enforced the admiralty rule. Since it was the duty of a steam vessel to keep out of the way of a rowing boat and since the automobile was a self-propelled vessel, this put the driver of the automobile in the wrong.

The Bureau of Navigation on the Great Lakes reprinted in rhyme the verses by the Englishman Thomas Gray which pilots committed to memory:

For Two Steamers Meeting End-on or Nearly End-on

Meeting steamers do not dread
When you see three lights ahead!
Port your helm and show your Red.

For Two Steamers Passing

For steamers passing you should try
To keep this maxim in your eye.
Green to Green—or Red to Red—
Perfect safety—go ahead.

For Two Steamers Crossing (This is the real position of danger. There is nothing for it but good lookout, caution, and judgment.)

If to Starboard Red appears,
'Tis your duty to keep clear;
Act as judgment says is proper,
Port, or Starboard—back, or stop her!
But when on your port is seen
A steamer with a light of Green,
There's not so much for you to do—
The green light must keep clear of you.

For All Ships (For all ships must keep a good lookout, and steamships must stop and go astern, if necessary)

Both in safety and in doubt,
Always keep a good look out;
Should there not be room to turn,
Stop your ship and go astern.

Though not entirely in accord with the present statutes, these verses still contain a great deal of common sense today.

States by an act of Congress in August 1890, to go into effect by presidential proclamation.

The 1890 International Rules finally legislated mandatory whistle signals for course changes. But the rules were still unsatisfactory, so further amendments were enacted before President Grover Cleveland's proclamation formally made the code effective as of July 1, 1897.

These rules applied to all vessels on the high seas and vessels on those internal waters capable of being navigated by seagoing vessels, except where local rules were in operation. This exception allowed the existing rules governing our internal waters and the Supervisory Inspectors' rules to remain in effect.

Meanwhile, Congress, on February 8, 1894, had enacted rules for preventing collisions on the Great Lakes and their connecting tributary waters as far east as Montreal. An active group of shipowners and masters on the Great Lakes felt that the Great Lakes presented unique navigation problems and believed the special circumstances in the area demanded special attention.

In June 1897, just before implementation of the new International Rules, Congress recodified the rules for inland waters, excepting the Great Lakes, the Red River of the North, and the waters emptying into the Gulf of Mexico. The recodified rules went into effect on October 1 of that year. Since special rules had been passed for the Great Lakes, this left the 1864 rules in effect on the Red River of the North and rivers emptying into the Gulf. Various admiralty writers took to calling these laws the "Mississippi Valley Rules" or the "Gulf River Rules," but mariners came to refer to them as the "Western Rivers Rules."

Between the time the original set of unified rules was legislated (1864) and the the turn of the century, the U.S. developed four separate and distinct sets of rules: a set for international waters, a set for the Western Rivers, a set for the Great Lakes, and a set for Inland Waters. In addition, we had three sets of pilot rules issued by the Board of Supervisory Inspectors, one for each of the three different groups of internal waters.

Without a doubt, all of these somewhat similar yet frequently conflicting sets of standards were so cumbersome as to confuse even the most knowledgeable and prudent mariner.

To be concluded next month

Weathering the Seas

(Reprinted from Lykes Fleet Flashes, *July/ August 1981)*

Homeward bound from the Mediterranean, the SS MARJORIE LYKES had just passed Gibraltar when the ship's radio came alive with a warning: a large storm was developing straight ahead, 300 miles west of the Azores.

But the ship could dodge the storm, the advisory continued, by changing course a few degrees to the south. The ship's master took the advice. The detour added 200 miles to the transatlantic voyage, but it saved time and possible damage by keeping the vessel out of high winds and rough seas. After an 11-day crossing, the MARJORIE docked in Miami, safe and sound, on schedule, and in good condition.

It was a routine voyage but an example of how modern weather forecasting has made the oceans safer for the ships and the men who sail them. Much has changed since the days when seafarers just sailed into the unknown and hoped for the best.

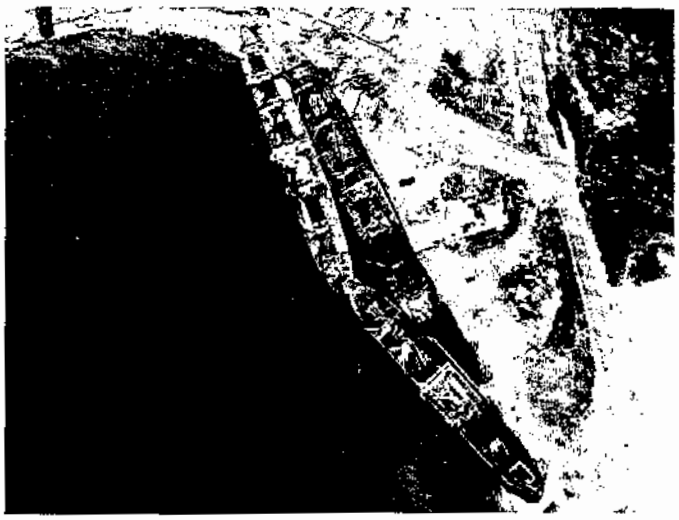
"With today's weather services, a ship master has access to all kinds of information about weather, seas, and the atmosphere," says Captain Ed Sawyer, head of Lykes' marine charts section. "Today a master can evaluate the data and make an educated decision. He's not just making an experienced guesstimate.

"A lot of things go into choosing a route," Sawyer says. "The shortest distance and best speed are not necessarily the best route. In addition to avoiding storms, we look for following winds, favorable currents, following seas, and other things. By selecting its route carefully, often a ship may go out of its way a couple of hundred miles but reach its destination quicker and without cargo damage."

Much has changed since the days when seafarers just sailed into the unknown and hoped for the best.

Ships have long taken advantage of prevailing winds and currents in selecting their routes. Benjamin Franklin did some of the early work in this field more than 200 years ago.

Today the weather still can't always be predicted with certainty, but modern technology and accumulated knowledge have moved us closer to that goal.



In 1969 Hurricane Camille drove three large freighters, the HULDA, the ALAMO VICTORY, and the SILVER HAWK, ashore in Gulfport, Mississippi, and left them high and dry. The bent screw on the stern of the SILVER HAWK is evidence of the crew's attempt to move the vessel under power to avoid being swept inland. Photos courtesy of the National Oceanic and Atmospheric Administration

"There have been many improvements over the last few years," says William Kaciak, founder and president of Weather Routing, Inc., of Hopewell Junction, New York, which has worked with Lykes for years. "Today we have more satellite pictures, more weather maps, and generally more and better data available.

"Nowadays you're seldom surprised to find a hurricane in an area, because a satellite would show it. Years ago, you might not know the hurricane was around. Now it's harder to get caught by surprise.

"One of the most helpful developments in recent years has been the use of computers for analysis and modeling of the atmosphere, especially the upper air flows. This helps us with some of the long-range forecasts we have to make. All of this additional data helps us develop a better analysis and understanding of what is going on."

"Safety is our primary consideration. Our goal is to minimize exposure to severe or potentially damaging weather, as well as to get as quick a voyage as possible."

As its name suggests, Weather Routing, Inc., specializes in forecasting weather and recommending routes for ships. "There are only about six companies in the world in this field," Kaciak says. "I was one of the pioneers. I started experimenting with weather routing in 1954 or 1955, and I got serious about it about '56 or '57. Today we have six meteorologists on our staff."

"The shortest distance and best speed are not necessarily the best route."

Weather data from all over the world clatter into Kaciak's office over teletype machines. Major sources include the U.S. Weather Service, with its radar pictures, maps, and other information, and the World Meteorological Organization, an international group whose member nations share weather data.

"Collection of weather information is one area where all nations cooperate," Kaciak notes. "Most nations belong to the World Meteorological Organization, and different nations have responsibility for supplying information from their regions. This information is obtained from thousands of reports from land stations, ships, and satellites."

Although modern technology has given weathermen more and better tools to work with, the human element remains essential.

"Long-range weather forecasting is both a science and an art," Kaciak says. "It's an art because it requires experience. Weather forecasters get better as they get more experienced. If it were a pure science, you could teach the fundamentals to a beginner, and he could do the job. But you can't take a beginner and allow him to forecast immediately.

". . . there are enough weather maps being transmitted for a ship to receive them almost 24 hours a day."

"The forecasting that we do is different from the one- or two-day forecasts that you get on television or radio," Kaciak explains. "The type of forecast we prepare is five days at a minimum, and we try to extend it through the length of the voyage, maybe 12 days.

"It takes a certain skill," Kaciak says. "Not everyone has it, and it's not something that can be taught. It takes a certain type of person. Some meteorologists are good on short-term forecasting but not long-term. You must have the knack and the aptitude.

"A lot of what makes a good forecaster is intangible," Kaciak muses. "It's like trying to define what makes a great artist or a great musician. You can have the training or education, but you have to have that certain spark also. And you don't really find out whether a person has it until he has worked for one or two years. I've had some very bright people working for me who were brilliant theorists but who didn't have that knack."

A 52-foot Coast Guard vessel beats its way over the Columbia River bar.

Kaciak's firm has recommended routes for hundreds of voyages over the years. One he remembers best involved a passenger ship on a transatlantic voyage several years ago.

The ship left New York with 400 passengers and crewmembers on a voyage to the English Channel at the same time a hurricane was blowing in the Atlantic. "The storm was predicted to travel northeast, which would have put the ship and the hurricane on a collision course," Kaciak recalls.

"Normally in such a case, most masters would proceed west and south in hope of passing south of the hurricane. Instead, I recommended that the master continue eastward. I felt the storm would not continue northeast but would stall and move west. That is what happened. The ship safely passed well north of the hurricane. Had the master taken the standard maneuver, she would have encountered the effects of the hurricane.

"It was a difficult decision to make, with 400 lives at stake. But I felt positive the storm would not come northeast. The data indicated high pressure building over the Canadian maritime provinces. If this high built up, it would prevent the hurricane from moving northeastward. As it turned out, the high did build and prevented the hurricane's movement."

A more recent example of successful weather routing was a voyage this year of the roll-on/roll-off ship TYSON LYKES from Seattle to Yokohama.

There was heavy weather over much of the Pacific, and the TYSON's master, Captain W. R. Day, telephoned Kaciak from his ship. They discussed the situation and reviewed the possibilities. Kaciak said the weather to the south was "horrible" and recommended that the master take a more northerly route than usual. There was heavy weather to the north, too, but the routing kept the ship out of the worst storms, and the ship encountered only a couple of days of really rough weather.

"It was a difficult decision to make, with 400 lives at stake. But I felt positive the storm would not come northeast."

The TYSON made the transpacific voyage in a respectable 8 days and 9 hours, with an

average speed of better than 21 knots—good time, considering the circumstances.

"Mr. Kaciak's telephone analysis of the weather for the North Pacific was of invaluable help," Captain Day wrote in his report to Lykes headquarters. The routing, Day said, "resulted in significant savings in bunkers and time."

"All bad weather is not avoidable," Kaciak observes. "When bad weather is unavoidable, we try to minimize exposure to it. There are times when we'll intentionally let a ship get into moderately bad weather for a day or two in order to avoid three or four days of it. Safety is our primary consideration. Our goal is to minimize exposure to severe or potentially damaging weather, as well as to get as quick a voyage as possible."

Ship masters communicate with the weather routing service by telex or radio. They report when they expect to pass Gibraltar, the Florida Straits, or some other entrance to open sea, and

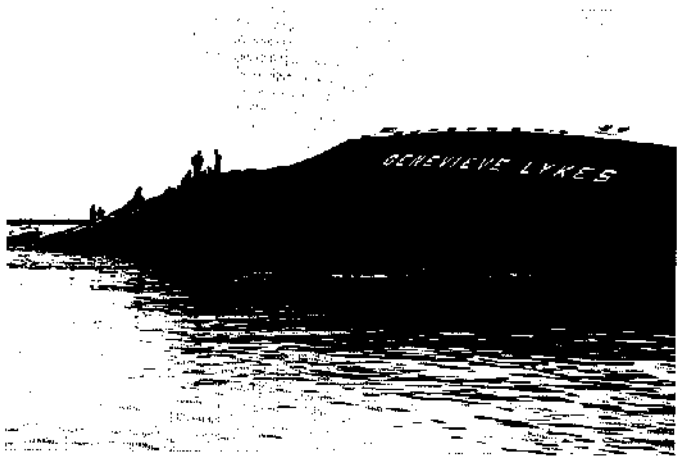
. . . perhaps half of all voyages include some weather problems-- ranging from Pacific swells to Atlantic icebergs to fog . . .

they give details on their ship's draft, speed, stability, and any special requirements for cargo or handling.

The forecasters respond with a general description of the weather features expected on the crossing and with a recommended route. During the voyage, the forecasters check the ship's position daily and monitor the weather conditions, suggesting course changes if necessary.

No matter what the forecasters recommend, the final decision on routing is made by the ship's master. "He knows what his ship can take and what it cannot. He is on the scene," Kaciak says. "We work together as a team to get the optimum routing. A good relationship between the router and master is vital."

Today's ships have access to a wide range of weather information. "There are marine broadcasts in all parts of the world designed especially for mariners," says Sawyer, of Lykes' marine division. "We have facsimile equipment on our ships, and there are enough weather maps being transmitted for a ship to receive them almost 24 hours a day. These facsimile



The GENEVIEVE LYKES sank atop the LETITIA LYKES after Hurricane Betsy hit New Orleans in 1965 and blew both vessels eight miles upriver.

maps are more detailed than the ones you see on the TV weather. They show wind direction and patterns, seas, fronts, wind speeds, and other meteorological data."

Sawyer says that perhaps half of all voyages include some weather problems—ranging from Pacific swells to Atlantic icebergs to fog, which is especially troublesome in the Grand Banks area of the Atlantic, the Pacific Northwest, and at times in the Gulf.

Kaciak says weather routing tends to be more difficult in the Atlantic than in the Pacific because there is less area in which to maneuver around storms. "The Pacific can be difficult, though," he adds. "Some years they've gone through the alphabet twice in naming the tropical storms there. Sometimes they don't get out of the first third of the alphabet."

The last couple of years have brought some abnormal weather patterns, but with weather,

"Some years they've gone through the alphabet twice in naming the tropical storms [in the Pacific]."

Kaciak says, "the normal thing is to have abnormality." During 1980, the oceans were "really turbulent and disturbed," he says, because of arctic air moving farther south than usual in some areas and tropical air moving farther north than usual in others.

Naturally, storms are more frequent and violent in the northern and southern areas

where warm and cold air masses collide. "Around the equator, there aren't too many severe storms," Kaciak says. "However, in routing for a ship near the equator, we'll try to keep track of currents and maybe increase the ship's speed.

"In weather routing, you have to keep up with what's going on in the oceans throughout the world. Changes in the Pacific one week often can be expected in the Atlantic in another week or 10 days. You have to study it on a day-by-day basis to get an understanding of what is happening."

Captain Frank E. Johnson, master of the SEABEE barge, container, and heavy-lift ship DOCTOR LYKES, has sailed with Lykes for 45 years. He welcomes the advances that have been made in weather forecasting and routing.

It gives a ship's master more information to work with," Johnson says. "The weather routing companies can accumulate and process much more information than a single ship ever could.

"But even with the modern reports," Johnson adds, "I still go out and look at the sky every morning to see if it goes with what the information says." ↓

Hurricanes Have Genders, Nationalities, Too

You may have noticed that hurricanes are no longer all "she's." Tropical storms, which may develop into hurricanes, now are given male and female names.

But did you know that the listing is multilingual? This is in recognition of the different nationalities located in or near the Caribbean Sea, Gulf of Mexico, and parts of the Atlantic Ocean where the storms start.

Also, the names of prominent storms, such as "Agnes" and "Camille" are removed from the list and never used again, much in the way the numbered jerseys of outstanding athletes are retired.

A six-year rotating list of names is reviewed once a year under the auspices of the World Meterorological Organization. Names of the "really big ones" are replaced with appropriate new names.

The current practice of using distinctive given names in written and spoken communications has proven to be faster and less subject to error than the older latitude-longitude identification method. These advantages are especially important in exchanging detailed storm information between hundreds of widely scattered stations and airports, coastal bases, and ships at sea.

In the past, confusion and misleading rumors have arisen when storm advisories broadcast from one radio station were mistaken for warnings concerning an entirely different storm located hundreds of miles away.

A tropical storm begins as a "depression" with wind speeds of 25 to 38 mph. It is nameless at that stage and remains so until it builds up steam, generating 39 to 73 mph winds. Then it is designated a tropical storm and gets a name.

When the wind speed reaches 74 mph, the storm is designated a hurricane but keeps the same name.

These are the names to be used during the 1982 Atlantic Basin hurricane season, which is expected to run from June through November:

Alberto	Helene	Oscar
Beryl	Isaac	Patty
Chris	Joan	Rafael
Debby	Keith	Sandy
Ernesto	Leslie	Tony
Florence	Michael	Valerie
Gilbert	Nadine	William

Completely different sets of male and female names are assigned to storms in parts of the Pacific Ocean.

In the Eastern Pacific, the storms are called hurricanes and have predominantly Spanish names, since they primarily affect Central America and Mexico.

Central Pacific storms, also called hurricanes, are given Hawaiian names.

Storms in the Western Pacific are called typhoons and are assigned male and female names. Typhoon advisories are issued from Guam by the Joint Typhoon Warning Center, staffed by Air Force and Navy personnel.

Setting our Sites on Safety

by LT Michael Brown
Port Safety Branch
Eighth Coast Guard District

Waterfront facility siting (deciding where a new waterfront facility such as a dock, oil terminal, or container facility is to be located) has become an increasingly important issue in marine safety. As a waterway becomes more crowded and the volume of hazardous cargoes carried on the waterway grows, the potential for accidents increases. Facility siting can have a major impact on that potential.

There are several factors involved in the siting process. These can be broken down into five categories:

- **Navigation** - Where on the waterway would the facility be best located? What implications will its location have for vessel safety and traffic management?

- **Health, safety, and welfare** - What effect will the facility have on people, both those working in the facility itself and, more importantly, those that live and work in the immediate area?

- **Environment** - How will the facility affect the land, water, and air?

- **Space allocation** - What type of facility is to be sited?

- **Economics** - What economic benefits, if any, will accrue to the local area as a result of the facility's being located there? Could the facility affect the area's economy adversely?

Naturally, these five considerations are interrelated, and there are no rigid lines dividing them. Implicit in the considerations is what commodity the waterfront facility will be handling.

However, only the first three considerations have a bearing on marine safety, and only these three will be examined further in this article.

The usual method of controlling facility siting is through the permit-issuing process. Generally speaking, developers must obtain a multitude of permits from all levels of government before they can build a facility. Many of these permits are not site-related; that is, the location of the proposed facility is of no or very little importance in and of itself. This is true of building permits or Federal Communications Commission licenses, for example. The permits with which we are concerned are site-specific. At issue is whether a facility can be built or located at a given location and, if so, what special conditions (if any) will be imposed.

The primary Federal agency involved in waterfront facility siting is the U.S. Army Corps of Engineers (COE). The COE's authority in this area derives basically from the Rivers and Harbors Act of 1899. The primary thrust of this Act is to protect navigation, and it authorizes the COE to issue permits to people wishing to build structures on the navigable waters of the U.S.

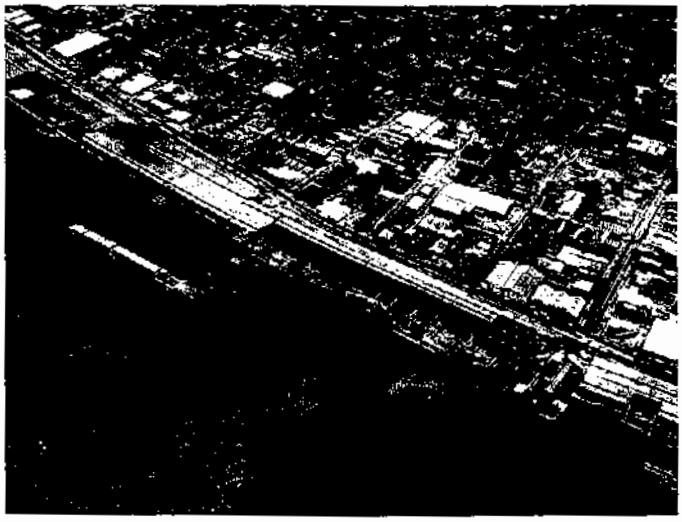
In a policy decision in 1968 the COE expand-

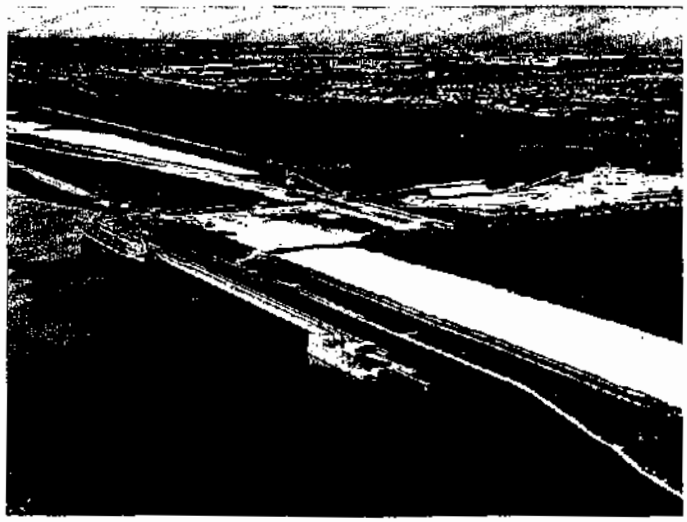
ed the scope of the permit review beyond strictly navigational considerations. It now considers fish and wildlife preservation, aesthetics, pollution, and the general public interest. In addition, the Clean Water Act, the National Environmental Policy Act of 1969, the Coastal Zone Management Act of 1972, and the Marine Protection Research and Sanctuaries Act of 1972 all require the COE to consult with various other Federal agencies and obtain either their approval or a statement of no objection before granting a permit.

The normal process is as follows: the applicant applies to the COE for a permit to build a facility. He must also apply to other Federal, state, and local agencies for concurrent permits, as necessary. The COE makes a preliminary environmental impact assessment of the proposed project and determines whether or not an Environmental Impact Statement (EIS) is required. The COE then sends out a notice of the proposed project to the government agencies concerned and to interested individuals. If a draft environmental impact statement (DEIS) is prepared, that will also be sent out at this time. On the basis of the initial comments it receives and the scope of the project, the COE determines whether a public hearing will be held. After receiving all comments, studying the EIS, if required, and conducting a public hearing, if necessary, the COE prepares the final EIS, evaluates all the data, and either grants or denies the permit. If other government agencies object to the proposal and the COE finds the objections reasonable, the COE attempts to iron out the differences between the applicant and the objecting party. If the objection cannot be overcome, the permit is generally not granted. If certain agencies either object to the issuance of a permit or refuse to grant the applicant their permit, then the COE by regulation cannot grant its permit. These agencies include the Environmental Protection Agency (EPA), the National Marine Fisheries, the Fish and Wildlife Service, and the state Coastal Zone Management agency involved.

The Port and Tanker Safety Act of 1978 gave the Coast Guard authority to prescribe standards promoting safety in navigable waters and protecting waters from environmental harm. The COE sends all permit applications to the Coast Guard for review and comments on the navigation aspect of the proposed facility. As a practical matter, the Corps generally will not grant a permit if the Coast Guard objects and a satisfactory arrangement cannot be made between the Coast Guard and the applicant.

At present, the Coast Guard's role in the facility siting process is limited strictly to navigation concerns. Permit application review is usually conducted at the Captain of the Port level. Input is sought from local waterway users such as pilots, vessel operators, and trade associations. Generally, one of three positions is taken: outright objection, no objection, or no objection provided certain conditions are met. Outright objection is taken if the facility as proposed creates an unacceptable hazard in terms of the safety of the waterway. No objection is taken if the proposed facility will not create such a hazard. If the proposed





A facility's proximity to a heavily populated area may limit the types of commodities it is allowed to handle. For some commodities, siting in relatively remote areas may be necessary. Photos by Sam R. Sutton

facility will create an unacceptable hazard but mitigating measures can be taken to alleviate that hazard, the position of no objection is taken, provided the mitigating measures are made part of the COE permit.

While the issuing of permits at the Federal level is fairly uniform, the process can vary greatly at the state and local level. State and local governments do not follow any single pattern. Many coastal states have a Coastal Zone Management agency of some form or other that is concerned with siting and land use, and most local jurisdictions (i.e., cities and/or counties) have some form of a planning commission concerned with siting. In addition, there are generally several other state and local agencies that have a say in the siting process. Authority on the state and local level is diffuse and depends on:

- the state in which the facility will be built,
- where in the state it will be built, and
- what the facility will handle.

Authority could be vested in the City, State, County, Autonomous District, Port Authority, or any combination of the above. Within any of those political entities, it could be in either the executive or legislative branch. Public hearings may or may not be held. On all levels, Federal, state, and local, there is a possibility of judicial review.

The type of cargo handled is one of the most important factors officials have to consider when deciding on a site. Shown above are facilities handling petroleum (lower right), grain (upper right), and general cargo (upper center).

The state and local agencies are concerned with all five of the considerations for siting, whereas the Federal agencies are generally concerned only with the first three. Space allocations and economic considerations tend to be more local issues, and the Federal government has only limited authority to act in those matters.

Decisions made on facility siting at all levels are generally of a qualitative nature ("We don't want a facility close to where our children will be playing") as opposed to a quantitative one based on specific criteria ("No facility shall be located within 500 yards of an area zoned for residential development"). In many cases values have not been quantified, and no specific limits have been set. Some Federal agencies have developed specific criteria, but these are either locally applied or not site-specific. (One state, California, is proposing very specific criteria, but this is the exception and not the rule.)

The body approving a permit (the COE, local planning commission, etc.) could develop specific standards by considering some of the following factors. Note that these factors could be quantified and limits set.

Navigation considerations

- Depth of water - The COE recommends design draft of vessel plus two feet plus allowance if there are frequent low tides.
- Width of channel - The COE has a formula of channel width in bends. Other Federal and state agencies have a figure of three times beam of vessel plus ten percent safety factor.
- Maneuvering area - The COE has a standard that considers draft, length of vessel, and size of channel.
- Character of channel (i.e., sharp bends, etc.) - Limits on the size of vessels and restrictions on type of cargo could be established based on the angles of bends and the width and depth of the channel.
- Currents and tides - Limits on the size of vessels and minimum horsepower requirements could be established based on the velocity of currents and range of tides.

- Present traffic patterns - Limits on the size of vessels and restrictions on arrival/departure times could be established based on traffic density and flow.

- Type of bottom - Minimum underkeel clearance could be established based on type of bottom. For example, greater underkeel clearance might be required in areas with a rocky bottom than in areas with a muddy bottom.

- Proximity to other facilities and anchorages (vessels anchored or tied to other facilities may pose hazards to a vessel navigating the waterway) -Minimum spacing requirements between certain types of facilities, between facilities and anchorages, and between facilities and difficult-to-navigate portions of the waterway could be established.

- Anchorage areas - Requirements for accessibility and availability of anchorage areas could be established.

Health, safety, and welfare considerations

- Proximity to a residential or industrial area - Some standards exist as to how close a facility can be to a populated area, but these vary from location to location and usually take the form of a zoning ordinance.

- Noise - Maximum decibel limits could be set.

- Local infrastructure - A certain level of adequacy could be specified (i.e., distance from fire protection and police, access to the facility, distance to emergency care, etc.).

Environmental considerations

- Water spill - Limits could be set on how much of a commodity a facility might handle. Based on a worst-case spill, these limits would ensure that environmental damage would be kept to a minimum.

- Effluent discharge - Criteria are established by EPA for effluent discharge. They generally are not site-specific, however, and modifications based on the environmental sensitivity of the proposed site may be appropriate.

- Air pollution - Criteria are established by EPA and the states, but again local modifications may be appropriate.

In spite of industry's and government's best efforts, accidents sometimes do occur . . .

This list of factors is by no means exhaustive, but it does include some of the most important points to consider. All of these criteria should be addressed regardless of what commodity a facility handles because of their bearing on safety and the environment. What, specifically, the facility handles, however, is extremely important because it determines what limits should be imposed. We are concerned with not only the risk of an accident but also what the consequences of an accident would be, and limits and criteria should reflect this. For example, the margin of safety should be greater for a facility handling a Cargo of Particular Hazard than for one handling grain.

The siting process is not necessarily a yes/no decision. It should be flexible in its treatment of variables and limits. Limits are relatively fixed standards that provide an acceptable level of safety. Variables are conditions that can be adjusted to ensure that the limits are not exceeded. As initially proposed, a facility may exceed the limits, but if the conditions of its operation (the variables) are modified or adjusted, it could operate within the limits and thus be constructed.

For example, an applicant may propose to bring 60,000-DWT vessels carrying 300,000 barrels of Cargoes of Particular Hazard to a

facility located one-half mile from a heavily populated area. The authorities may decide that no facility handling Cargoes of Particular Hazard can be located within one mile of areas with a population density of 1,000 or more persons per square mile. In this case, the facility would not be permitted to be sited at all.

Now let's change the variables. Let's say an applicant proposes to build a facility at the end of a channel that is 1,000 feet wide and 40 feet deep, has a 90° bend in it, and has a rocky bottom. He also proposes to bring in fully laden 60,000-DWT vessels drawing 38 feet carrying 300,000 barrels of Cargoes of Particular Hazard including vinyl chloride, acrylonitrile, and oleum. The facility is located in an industrial area, and the nearest other facility is one mile away. The limits may be a minimum of 4 feet bottom clearance, a channel width of 3 times vessel width plus 10 percent, and no bends with more than a 30° angle. The limits could also stipulate that in the event of an accident, considering that all product would be released instantaneously, the vapor cloud could not pose a hazard to any other industrial or populated area. In the event of a fire, similarly, the radiant heat could not damage any other unprotected structures. In this case, the facility could be sited, but certain limiting conditions would be imposed. The vessels could come in light-loaded only (less than 36 feet draft), and a one-way traffic scheme would be imposed in the vicinity of the 90° bend. The vessels would be allowed to carry only 100,000 barrels of cargo so that in the event of an instantaneous release the vapor or heat limit would not be exceeded.

Of course, the actual siting decision is much more complex. More variables would be considered and more limits established. The concept of examining the facility and its location, considering the factors involved, and imposing conditions to either make variables fit within the limits or provide an alternate level of safety would be the same, however.

A valid question to ask at this point is: why have specific quantitative criteria at all? There are two major reasons.

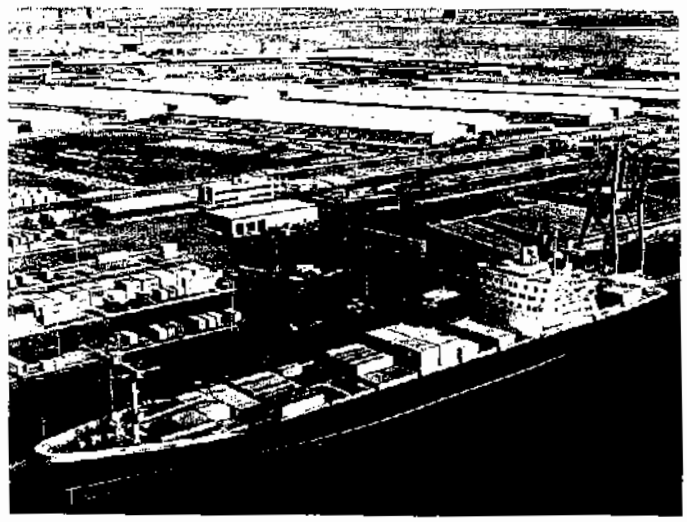
First, by having specific criteria, we can maintain a higher level of safety at what we hope is a minimum cost to industry. For example, speaking qualitatively, you may not want a facility handling Cargoes of Particular Hazard close to a populated area. But how close is close? One mile? One thousand yards? What affords an acceptable level of safety for the public and environment and at the same time imposes the least cost for industry, as the public will ultimately bear this cost?

Second, there is the matter of consistency. A persistent complaint on the part of industry is that the lack of consistency on what is required makes it difficult to plan. If we had a consistent set of standards, planning would be easier and industry would know just what was expected. By deciding standards in advance, we could speed the permit-issuing process.

Of course, not every factor can be quantified, and there will always be a matter of subjective judgment and qualitative analysis in facility siting. There will also be local conditions that will have to be addressed or that may allow for the relaxation of criteria. Facilities mean jobs and other economic benefits, but at the same time they pose environmental, health, and safety risks.

These benefits and risks must be weighed against one another. A set of specific criteria can give us a starting point for determining where and under what conditions a waterfront facility can be sited.

All facilities, especially those that handle Cargoes of Particular Hazard, have an impact on public and navigation safety. We can identify, to a large extent, what hazards are involved, and we know what we want to protect from these hazards. Specific, quantifiable criteria will serve to mitigate these hazards in a consistent, non-arbitrary manner. ‡



More and more cargo is carried by container, and container facilities are a common sight in almost every major port. Containers can carry virtually any type of packaged dangerous cargo, a factor that should be considered in the siting process.

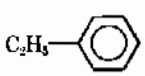
This is the third in a series of four articles discussing derivatives of the chemical benzene.

Ethylbenzene:

C_8H_{10} or $C_6H_5C_2H_5$

Synonyms:	phenylethane ethylbenzol
Physical Properties	
boiling point:	136°C (277°F)
freezing point:	-95°C (-139°F)
vapor pressure at	
20°C (68°F):	7.1 mm Hg
25°C (77°F):	9 mm Hg
Threshold Limit Values (TLV)	
time weighted average	100 ppm; 435 mg/m^3
short term exposure limit:	125 ppm; 545 mg/m^3
Flammability Limits in Air	
lower flammability limit	1.0% by vol.
upper flammability limit	6.7% by vol.
Combustion Properties	
flash point (c.c.):	15°C (59°F)
autoignition temperature:	432°C (810°F)
Densities	
liquid (water = 1.0):	0.87
vapor (air = 1.0):	3.66
Identifiers	
U.N. Number:	1175
CHRIS Code:	ETB
Cargo Compatibility Group:	32 (Aromatic Hydrocarbons)

Like the other two chemicals discussed thus far in this series, ethylbenzene is a variation on the benzene ring described in the June issue. Its name reflects its components; it is composed of a single ethyl group ($-CH_2CH_3$) attached to the benzene group:



Ethylbenzene, along with the three isomers of xylene discussed last month, is a member of the "C-8 aromatics" group. The "C-8" refers to the eight carbon atoms found in these compounds, and the "aromatic" is a chemical family name derived from the pleasant odor of the first few members identified.

Ethylbenzene is a major chemical. In terms of volume produced, it ranked 20th among chemicals in 1981, according to the May 3, 1982 issue of *Chemical and Engineering News.* Ethylbenzene can be made in several different ways. It can be distilled from the xylene component of what are called the "BTX" fractions (benzene-toluene-xylene). Most ethylbenzene, however, is produced through a benzene-ethylene reaction; this method accounts for over 90 percent of the ethylbenzene produced.

Ethylbenzene's primary use is in the manufacture of styrene,* from which polystyrene is made. A small percentage is also used as a solvent in the chemical, paint, and rubber industries.

Ethylbenzene, a clear, colorless liquid, is highly flammable, and this is its primary hazard. Its vapor, like that of many hydrocarbons (organic compounds consisting primarily of carbon and hydrogen), is heavier than air and, if released, will flow along the ground or deck. Should it come into contact with a source of ignition, the resulting flames can flash back to the source of the vapor, setting the entire container on fire. Effective firefighting agents are foam, dry chemical, and carbon dioxide. Water fog or spray are effective for cooling but may not work as extinguishing agents. The products of combustion, such as carbon dioxide and acrid fumes and vapors, may be toxic, and firefighters should use respiratory protection such as a self-contained breathing apparatus.

Ethylbenzene can affect the body through skin and eye contact, ingestion (swallowing) of the liquid, or inhalation of the vapor. The effects of short-term overexposure to the vapor are irritation of the eyes, nose, and throat. Exposure to high concentrations makes the irritating effects more intense. In fact, ethylbenzene is generally considered to have the

* See M16616.5, "Safe Handling of Styrene," available from Commandant (G-CMA-3), U.S. Coast Guard, Washington, DC 20593.

most severely irritating effects of the four benzene derivatives being discussed in this series. Exposure to high concentrations will result in weakness, dizziness, and a drowsy feeling. Overexposure could lead to unconsciousness. Because the chemical acts as a solvent on the body's natural oils, prolonged or repeated contact with ethylbenzene could cause a skin rash.

To protect themselves from exposure to liquid ethylbenzene, personnel should wear impervious clothing, gloves, and face shields/splash-proof safety goggles. Contaminated clothing should be removed and thoroughly washed before being reworn. Affected skin areas should be washed with soap and water. The eyes, if affected, should be flushed with plenty of water. In cases of ingestion, vomiting should not be induced because of the danger of aspiration; if even a small amount gets into the lungs, it can cause extensive swelling and bleeding. Inhalation overexposure is treated by removal of the victim to fresh air and, if necessary, artificial respiration.

Ethylbenzene is unlikely to catch people unaware because its odor and the irritation it causes warn people of its presence. This would ordinarily preclude exposure to concentrations high enough to damage the body's systems.

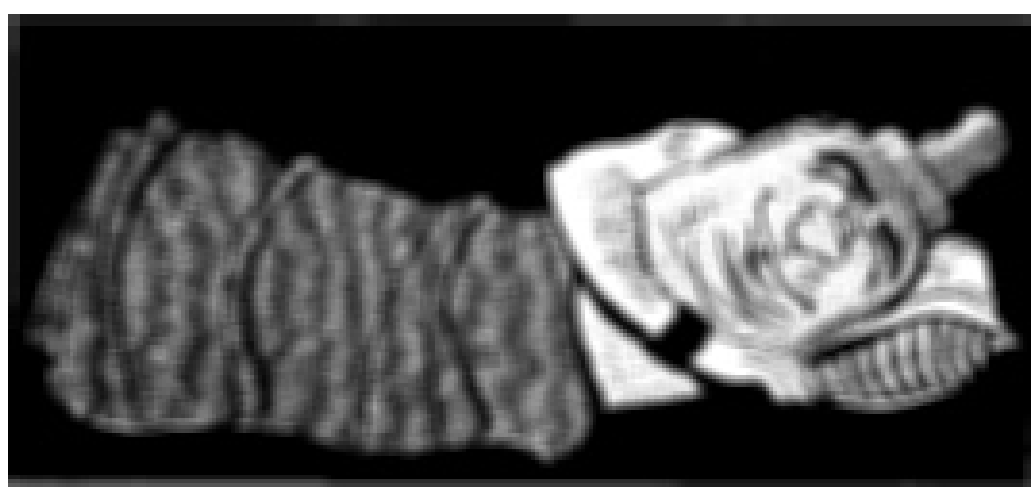
Ethylbenzene is regulated by the U.S. Coast Guard as a Subchapter D commodity, Grade C flammable liquid. The International Maritime Organization (IMO) does not regulate it. The U.S. Department of Transportation classifies ethylbenzene as a flammable liquid. Both the Environmental Protection Agency and IMO consider it a Class C pollutant.

Hazard Evaluation Branch
Marine Technical and
Hazardous Materials Division

Next month: cumene

Don't Wake the Sleeping Giant

(Reprinted with permission from the Chevron Shipping Company Safety Bulletin, *February 1981)*



Stories of jet-propelled gas cylinders are not uncommon, but this one did so much damage in the course of its highly unpredictable final few seconds that it deserves mention:

The CO_2 cylinder with cap removed was being moved across an airplane hangar floor. It fell, the valve broke off, and the cylinder took off. It went through several aircraft wings, broke off sprinkler heads and started a flood, destroyed an assortment of equipment, went through a concrete wall, and finally came to rest outside. The damage was estimated at more than a half million dollars.

This sort of accident is not restricted to CO_2 cylinders. Any compressed gas in a cylinder, such as Freon, oxygen, air, acetylene, nitrogen, etc. can react in the same manner. We have many such cylinders aboard ship.

Ship motion and vibration make it especially important to keep all compressed gas cylinders securely retained at all times. The mixing valve, gauges, and hoses should be removed and the protective caps put back on whenever a bottle is not actually in use. ‡

This month's lessons are a pair of cases that show that, in the right combination, minor circumstances can have fatal consequences. In one instance, the deceased was carrying out a routine task he had probably performed countless times before. This time, however, the circumstances were such that the incident resulted in his death. The second case resulted from an individual's using a normally safe piece of gear in a manner other than that for which it was designed. Again, the result was death.

One evening in late spring a three-man crew (Coast Guard-licensed operator, deck utilityman, and deckhand) was moving a loaded freight barge from one area of a fleet to another on the Upper Mississippi River. At about 2200 the deckhand and utilityman boarded the barge from the towing vessel without telling the operator. Their intention was to prepare to secure the barge in its new position in the fleet. Rain had been falling, and a light drizzle was still coming down.

The barge was loaded with grain, and some wheat residue was covering the starboard deck area. Neither man was wearing a Personal Flotation Device (PFD), but the utilityman was wearing a yellow rain jacket. As he proceeded along the starboad walkway toward the bow of the barge, he fell overboard. As he fell, his flashlight attracted the attention of the operator, who shined the vessel's spotlights to the starboard side and turned on the vessel's bow/deck light.

The operator then requested that the deckhand keep the utilityman in sight while they maneuvered the barge into a nearby slip. While there were life rings on the vessel, no attempt was made to throw one to the utilityman. After taking care of the barge, they returned to where the utilityman had last been seen. A thorough search of the area by the towboat and other vessels which responded to a call for assistance failed to produce any trace of the lost utilityman. His body was recovered three days later.

This tragedy resulted from a combination of rather minor circumstances, none of which should have been fatal by itself:

1. The starboard walkway was covered with wheat residue. In itself, this may not have been too serious, but combined with the moisture from the earlier rain and drizzle it became quite hazardous.

2. The victim wore no PFD. This was careless but not in itself life-threatening.

3. The utilityman swam away from the barge after entering the water, and no attempt was made to throw him a life ring or line.

4. His body was still clad in the rain jacket when it was recovered.

The slippery deck surface led to the victim's fall overboard, and the absence of a PFD, compounded by the weight of the rain jacket, resulted in his being unable to remain afloat until help was rendered.

The second incident occurred as an undocumented industrial worker was painting the overhead of the engine room on a vessel. He was working from an aluminum ladder that had been secured horizontally between a handrail and the top of the diesel oil tank. The ladder broke and collapsed, causing him to fall nine feet to the deck. He was airlifted by helicopter to a hospital, where he died the following day without regaining consciousness.

Here an individual made improper use of a ladder which, although quite adequate for its intended function, simply was not designed to withstand the stresses the man placed on it by using it horizontally.

These cases again illustrate that whenever one attempts to shortcut safety, there is a risk of tragedy. While it may be successfully avoided many times, there is always the chance that the one particular combination of circumstances that will produce a casualty will occur. ‡

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. By day, vessels over 20 meters in length fishing in International waters display

A. two black balls in a vertical line.
B. two black cones in a vertical line.
C. two baskets in a horizontal line.
D. one black ball.

REFERENCE: CG-169 Rule 26 (c)(i)

2. The service use of approved handheld rocket-propelled parachute red-flare distress signals shall be limited to a period of

A. six months.
B. one year.
C. two years.
D. three years.

REFERENCE: 94.90-5 CG-257

3. The deck beam brackets of a transversely framed vessel resist

A. hogging stresses.
B. sagging stresses.
C. racking stresses.
D. shearing stresses.

REFERENCE: Baker

4. "Combustible" means that an oil will

A. give off inflammable vapors only above 80°F.
B. give off inflammable vapors at or below 80°F.
C. give off inflammable vapors only above 150°F.
D. give off inflammable vapors at or below 150°F.

REFERENCE: American Merchant Seaman Manual

5. Which of the following statements does not apply to vessels operating in ice?

A. Course changes should not vary more than 45° from the base course.
B. A course toward a "water sky" should lead to light ice concentrations.
C. Speed can be determined by use of a Dutchman's log or radar.
D. More reliance can be placed on the magnetic compass than the gyro compass.

REFERENCE: Knight's

Corrections

The words "in a turn" were left out of Question 4 of the "DECK" Nautical Queries in the June 1982 issue. Also, the "GM" in answers B and C should have been "CG".

In question 5 of the "DECK" section of the June issue, the words "and periodically dried out" should be added to statement II.

ENGINEER

1. A sudden drop in compression pressure in one cylinder of a diesel engine can be caused by

A. a leaking fuel injector nozzle.
B. a clogged air filter.
C. excessively early fuel injection.
D. malfunctioning valves.

REFERENCE: Maleev

2. Ring-groove inserts are sometimes used on aluminum alloy pistons to

A. reduce the ring-groove wear rate.
B. seal against crankcase vapors.
C. lessen wear on aluminum parts of the cylinder.
D. allow for the greater expansion rate of aluminum.

REFERENCE: Stinson

3. In a single-acting, two-stroke-cycle diesel engine, the power impulse in an individual cylinder occurs

A. once every crankshaft revolution.
B. once every two crankshaft revolutions.
C. once every piston stroke.
D. twice every piston stroke.

REFERENCE: Stinson

4. Which statement is characteristic of precision-manufactured roller bearings?

A. They are not capable of maintaining alignment over long periods of time.
B. They have a relatively high power loss from friction.
C. They are well adapted to variable speed operation.
D. Their lubrication is complicated and requires constant attention.

REFERENCE: Osbourne

5. At dead center, the centerline of the connecting rod usually coincides with the

A. angularity of the piston motion.
B. inertia moment from the piston.
C. centerline of the cylinder.
D. centerline of the crankpin.

REFERENCE: Maleev

ANSWERS

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

SS CHANCELLORSVILLE
Receives Award for Rescue

The saving of lives and property at sea has traditionally been the Coast Guard's "claim to fame." In a single year the Coast Guard receives 70,000 calls for assistance.

Although for most of these the Coast Guard responds on its own, circumstances sometimes dictate the need for outside assistance. One such instance occurred the evening of November 27, 1981, when the SS CHANCELLORSVILLE, a 586-foot tanker owned by Keystone Shipping Company of Philadelphia, rescued five men from the storm-beaten 39-foot sailing vessel TINA while en route to New York.

The TINA had left Bermuda the morning of November 23, heading for Brazil. Three days later, approximately 240 miles east of Bermuda, the TINA encountered heavy seas which caused the vessel to flood and become dismasted. The flooding resulted in lost power and left only the VHF radio operating.

It was not until the next morning that a Navy P-3 Orion heard the distress calls. Given the approximate position from which the calls were coming, the Coast Guard Operations Center in Bermuda contacted the CHANCELLORSVILLE, which had been assisting in a search 200 miles southeast of Bermuda, and requested that it assist the TINA.

Within barely eight hours, the CHANCELLORSVILLE located the TINA and brought the five men on it aboard. The interior of the sailboat was reported in very poor condition, and the boat was set adrift. Fortunately, the crew was in good condition and required no medical attention.

After an 8-hour search, the crew of this 586-foot tanker was able to rescue the 5-man crew of a 39-foot sailing vessel. Photo courtesy of Keystone Shipping Co.

On May 14, 1982, Captain John B. Ekman, Commanding Officer of the Coast Guard's New York Marine Inspection Office, commended the captain and crew of the CHANCELLORSVILLE while presenting them with a Certificate of Merit. Accepting the award for the crew were Mr. E. Dieterlea and Mr. Steven B. Gerke of Keystone Shipping. The certificate reads in part, "This Certificate of Merit is presented to the captain and crew of the SS CHANCELLORSVILLE in recognition of notable services which assisted greatly in furthering the aims and functions of the U.S. Coast Guard." ⚓

Where to Find Coast Guard Regulations

In the past, the Coast Guard provided the public with reprints of selected subchapters of the Code of Federal Regulations (CFR) free of charge. This was done to keep interested parties up-to-date on Coast Guard regulations. Because of high printing costs and tight budgets, this policy must be discontinued. The Superintendent of Documents of the U.S. Goverment Printing Office publishes the CFR in yearly updated form; the CFRs are thus now the best source for current Coast Guard regulations.

To order copies of the CFR, call (202) 783-3238 or write Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Information on the price and availability of any volume can also be obtained from that source.

Title 46 of the CFR, covering shipping regulations, is divided into nine volumes. When ordering, refer to the volume and parts desired as shown in the chart below. For example, if marine engineering regulations are needed, 46 CFR Parts 41 to 69 (Volume 3) should be ordered.

The chart also shows the old Coast Guard-numbered publications (no longer being printed) that are equivalent to the CFRs.

Current CFR Volume and Parts	Contains	Replaces
1. 46 CFR Parts 1 to 29	Subchapter A - Procedures Applicable to the Public (Parts 1 to 9)	No Coast Guard-numbered equivalent
	Subchapter B - Merchant Marine Officers and Seamen (Parts 10 to 16)	CG-191 Rules and Regulations for Licensing and Certificating of Merchant Marine Personnel
	Subchapter C - Uninspected Vessels (Parts 24 to 29)	CG 258 Rules and Regulations for Uninspected Vessels
2. 46 CFR Parts 30 to 40	Subchapter D - Tank Vessels (Parts 30 to 40)	CG-123 Rules and Regulations for Tank Vessels
3. 46 CFR Parts 41 to 69	Subchapter E - Load Lines (Parts 42 to 46)	CG-176 Load Line Regulations
	Subchapter F - Marine Engineering (Parts 50 to 64)	CG-115 Marine Engineering Regulations
	Subchapter G - Documentation and Measurement of Vessels (Parts 66 to 69)	CG-177 Yacht Admeasurement and Documentation
4. 46 CFR Parts 70 to 89	Subchapter H - Passenger Vessels (Parts 70 to 89)	CG-256 Rules and Regulations for Passenger Vessels
5. 46 CFR Parts 90 to 109	Subchapter I - Cargo and Miscellaneous Vessels (Parts 90 to 106)	CG-257 Rules and Regulations for Cargo and Miscellaneous Vessels
	Subchapter I-A - Mobile Offshore Drilling Units (Parts 107 to 109)	No Coast Guard-numbered equivalent
6. 46 CFR Parts 110 to 139	Subchapter J - Electrical Engineering (Parts 110 to 139)	CG-259 Electrical Engineering Regulations
7. 46 CFR Parts 140 to 155	Subchapter N - Dangerous Cargoes (Parts 146 to 149)	CG-108 Rules and Regulations for Military Explosives and Hazardous Munitions
	Subchapter O - Certain Dangerous Bulk Cargoes (Parts 150 to 154)	No Coast Guard-numbered equivalent
8. 46 CFR Parts 156 to 165	Subchapter P - Manning of Vessels (Part 157)	CG-268 Rules and Regulations for Manning of Vessels
	Subchapter Q - Specifications (Parts 160 to 165)	No Coast Guard-numbered equivalent
9. 46 CFR Parts 166 to 199	Subchapter R - Nautical Schools (Parts 166 to 168)	No Coast Guard-numbered equivalent
	Subchapter T - Small Passenger Vessels (under 100 gross tons) (Parts 175 to 187)	CG-323 Rules and Regulations for Small Passenger Vessels
	Subchapter U - Oceanographic Vessels (Parts 188 to 196)	No Coast Guard-numbered equivalent
	Subchapter V - Marine Occupational Safety and Health Standards (Part 197)	No Coast Guard-numbered equivalent

Listed below are the Code of Federal Regulations (CFR) subchapters covering Coast Guard regulations on Navigation and Navigable Waters (Title 33, Chapter I of the CFR). Chapter I consists of a single volume containing 19 subchapters. Subchapters and/or parts of this chapter are not published individually; the entire volume must be ordered.

33 CFR Parts 1 to 199	Contains	Replaces
	Subchapter A - General (Parts 1 to 26)	No Coast Guard-numbered equivalent
	Subchapter B - Military Personnel (Parts 45 to 53)	No Coast Guard-numbered equivalent
	Subchapter C - Aids to Navigation (Parts 60 to 76)	CG-208 Aids to Navigation Regulations
	Subchapter D - International Navigation Rules (Parts 80 to 82)*	CG-169 Navigation Rules, International/Inland*
	Subchapter E - Inland Navigation Rules (reserved for future regulations)*	CG-169 Navigation Rules, International/Inland*
	Subchapter F - Interim Inland Navigation Rules (Parts 92 to 98)*	CG-172 Rules of the Road—Great Lakes* CG-184 Rules of the Road—Western Rivers*
	Subchapter G - Regattas and Marine Parades (Part 100)	No Coast Guard-numbered equivalent
	Subchapter H - Routes for Passenger Vessels (Part 105)	No Coast Guard-numbered equivalent
	Subchapter I - Anchorages (Parts 109 and 110)	No Coast Guard-numbered equivalent
	Subchapter J - Bridges (Parts 114 to 118)	No Coast Guard-numbered equivalent
	Subchapter K - Security of Vessels (Part 122)	CG-239 Security of Vessels and Waterfront Facilities
	Subchapter L - Waterfront Facilities: Security Zones and Regulated Navigation Areas (Parts 125 to 128)	CG-239 Security of Vessels and Waterfront Facilities
	Subchapter M - Marine Oil Pollution Liability and Compensation (Parts 135 and 136)	No Coast Guard-numbered equivalent
	Subchapter N - Artificial Islands and Fixed Structures on the Outer Continental Shelf (Parts 140 to 147)	CG-320 Rules and Regulations for Artificial Islands and Fixed Structures on the Outer Continental Shelf
	Subchapter NN - Deepwater Ports (Parts 148 to 150)	No Coast Guard-numbered equivalent
	Subchapter O - Pollution (Parts 151 to 159)	No Coast Guard-numbered equivalent
	Subchapter P - Ports and Waterways Safety (Parts 160 to 165)	No Coast Guard-numbered equivalent
	Subchapter S - Boating Safety (Parts 173 to 183)	M16752.2 (old CG-497) Rules and Regulations for Recreational Boats**

* Sections of Title 33 of the CFR were altered to incorporate the new unified Inland Navigation Rules, which went into effect December 24, 1981. The only publication now needed for a complete listing of Navigation Rules is CG-169, Navigation Rules, International/Inland, a new edition of which will be available later this year from the Government Printing Office under the number COMDTINST M16672.2.

** This publication is still available from the Commandant (G-BBT-1), U.S. Coast Guard, Washington, DC 20593.

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