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cover

Successfully navigating the tangled mass of U.S. shipping law is akin to finding one's way 'through a The article beginning on page 93 tells the maze. history of this maze and describes a proposed solution.

Maritime Sidelights

New Circular Indexes Liquid Cargo Regulations

A recently published Navigation and Vessel Inspection Circular (NVC) provides a single source of reference showing where the transportation of specific bulk liquid cargoes by water is regulated.

The number of bulk liquid commodities (cargoes) being transported in tank vessels and unmanned tank barges is constantly increasing. The majority of these commodities are regulated by the U.S. Coast Guard. Keeping track of these commodities and the regulations which govern them has become quite a task. The new NVC was developed to help people quickly and easily identify the pertinent regulations. It lists in tabular form the commodity name and the applicable parts of the of Federal Regulations Code governing movement in bulk of each. Also included as separate entries for each commodity are applicable international codes, other U.S. Government regulations, and other useful, but not regulatory, information.

The circular, NVC No. 4-81, Regulated Bulk Liquid Cargo Finding Aid, can be ordered from: U.S. Coast Guard (G-MP-4), 2100 Second St. SW, Washington, DC 20593.

New York Harbor's Tides Being Studied

The National Oceanic and Atmospheric Administration (NOAA) is now conducting a tide and tidal current survey of New York Harbor.

The purpose of the survey is threefold: first, to update the tide and tidal current tables and tidal current charts published annually by NOAA; second, to collect and meteorological circulatory data to be used for future ecological studies of this area; and, third, to redefine and update tidal datums for land movements and marine boundary determinations, as well as for nautical charts. NOAA is the principal maker and distributor of nautical charts in the

country.

Practically everyone who makes a living on the water or who enjoys the recreational benefits of boating relies on NOAA for important nautical information. Whether it be from nautical charts, the tide and tidal current tables, or weather information broadcasted over NOAA weather radio, NOAA provides essential guidance for the local mariner.

In conducting the current monitoring portion of the survey, the NOAA SHIP FERREL will be planting several current meter stations throughout the area using two mooring methods. The first method is a taut-line mooring configuration, which extends upward from a bottom anchor. The second involves suspending the current meter from within a bird-cage-like structure which is placed on the bottom. Each mooring system will be marked on the surface by a large buoy.

The exact locations of these current monitoring sites have been published in the Weekly Notice to Mariners. Buoys will be planted anywhere from 15 to 90 days.

The cooperation of all mariners is requested in not disturbing any of the various instruments to be deployed in local waters during the course of this survey. In the past, normal curiosity has resulted in boats either becoming entangled in the arrays or cutting loose the surface buoys by getting too close to them. Also, anyone who notices any of these buoys seemingly adrift is asked to notify his local Coast Guard.

In addition to these current meter sites, several tide gage stations will be established. These will be built on existing pier facings and should not present any hazard to navigation. The tide gage itself looks like a small grey "doghouse" and has a blue and white sticker on the side identifying it as a National Ocean Survey tide gage station.

The survey, which was begun in March, will run through the end of July 1981. Information packets containing pictures of the buoys used to mark the stations and charts showing their approximate locations can be ordered from the NOAA SHIP FERREL S492, c/o USCG Support Facility, Governors Island, New York 10004; (212) 668-7228.

Electronic Equipment Requirement Enters into Force on Great Lakes

Effective June 1, 1981, enforcement of 33 CFR 164.41 requiring carriage of electronic position fixing devices on non-tank vessels 10,000 gross tons and larger will commence on the Great Lakes. The implementation of this requirement had been postponed by the Commander, Ninth Coast Guard District, pending collection of LORAN C data and subsequent overprinting of the appropriate charts. Small-scale charts of the Great Lakes with LORAN C overprints have been made available by National Ocean Survey. Work is progressing on large-scale (coastal) charts, and these should begin appearing this summer. New editions of each chart will be announced in the Ninth Coast Guard District Notice to Mariners as they become available. The target date for completion of the large-scale series is May 1982. A catalog showing what charts are available (Nautical Chart Catalog No. 4, United States Great Lakes and Adjacent Waterways) can be obtained free of charge from National Ocean Survey's Catalog Distribution Division or sales agents in the Great Lakes area.

Carriage of electronic position fixing equipment for tank vessels 10,000 gross tons and larger has been required since June 1, 1979. The requirements for carriage of this equipment will be extended to all vessels 1600 gross tons and larger on June 1, 1982.

Dates Set for ISOSO '81

The International Symposium on Ship Operations, ISOSO-1981, will be held November 17 through 19 in New York City. The host organization for this year's conference is

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the Maritime Association of the Port of New York, which will act as coordinator of arrangements, exhibitors, and speakers. Returning as cosponsors are the Council of American Master Mariners, the American Institute of Merchant Shipping, and the Council of American Flag Ship Operators. Joining the sponsoring organizations this year is the Hydrographic Society. While the Maritime Association of the Port of New York will handle conference reservations directly, information can be obtained from any of the sponsoring groups.

There are 150 exhibit spaces in the conference facility. The conference will also feature in-water exhibits; several companies have reserved dockside space in order to offer "operational, hands-on exhibits" for the international maritime community.

The concurrent schedule of conference sessions will enable the agenda to include "practical nuts and bolts" information for everyone on the operational and maintenance side of shipping and equally important papers for the administrative and management teams. A partial list of conference topics includes: navigation, communications, plus hydrographics and weather; economies and logistics of vessel procurement (purchasing agent's viewpoint); ship operations and maintenance; complying with national and international regulatory standards; training and certification; ship performance; and cargo problems.

Interested persons should contact: ISOSO-1981, 34th Floor, 80 Broad Street, New York, New York 10004; (212) 425-5704.

Waterborne Transit Conference to be Held in Denmark

The International Marine Transit Association, of Quincy, Massachusetts, reports that the Sixth International Waterborne Transit Conference will take place in Copenhagen from September 29 through October 2. Hotel Scandinavia in Copenhagen will be the conference headquarters. A complete agenda will cover areas of interest to large and small ferry operators, manufacturers, and marine transit agencies. It will include: trends in navigational aids, the future of waterborne transportation, vessel conversion, safety regulations and equipment, fuels, people-handling, harbor and terminal facilities, ferry machinery, passenger amenities, vessel financing, noise and vibrations, high-speed vessels, and operators' panel. The conference is being designed to take advantage of port and ferry facilities, museums, and testing labs in the vicinity of Copenhagen. For further information, contact Bryan C. President, Walker, or Lotte Oedegaard, Press Secretary, DFDS A/S, Copenhagen K Denmark, Skt. Annae Plads 30, DK-1295 (Tel. 01-15 6300).

Inquiries on group travel arrangements from North America to the conference should be directed to Carl Berkowitz, Executive Director of the Bureau of Ferries in New York City. In addition to the Copenhagen air and hotel arrangements, he is pursuing side trips of interest to ferry operators to be taken after the conference is finished. He can be reached at the Bureau of Ferries, Department of Transportation, Battery and Maritime Building, New York, New York 10004; (212) 248-8045.

MHz Band Allocated for Mississippi River

The Federal Communications Commission has allocated frequencies in the 216-220 MHz band for a fully automated inland waterways communications system (IWCS) on the Mississippi River and connecting waterways.

The Commission had received numerous requests for frequencies for an IWCS, primarily from tug, towboat, and barge operators serving the Mississippi transportation system. They had found present ship-to-shore communications, largely provided by various public and limited coast stations mostly using the VHF (very high frequency) band, inadequate for their needs.

The fundamental barrier to the establishment of a river-wide system had been the lack of an adequate spectrum under existing allocations. The Commission received various proposals dealing with frequency requirements and other regulatory problems, which it consolidated into the rulemaking. Based on this proceeding and an earlier study by ARINC Research

Corp., the Commission concluded that a need existed for an IWCS along the Mississippi River system that would be automatically interconnected with the public telephone system and would be capable of providing voice, data transfer, facsimile, and radioteleprinter communications. It also determined that this system was needed in addition to the existing VHF public coast Class III-B stations, which will continue to serve those unable or unwilling to participate in an IWCS. Systems are to be authorized on a non-interference basis with adjacent TV Channel 13.

Since the Commission intended to provide only a basic foundation that would allow wide latitude for system design, IWCS applicants will have to submit detailed plans showing compliance with established goals and requirements. IWCS applicants may use FCC Form 503 (Application for Land Radio Station in the Maritime Services), supplemented with a detailed plan showing that the proposed system will provide continuous service along more than 60 percent of one or more navigable waterways in the Mississippi River system. Waterways covering less than 150 miles should be served in their entirety. The agency will not require a separate form for each station in a system, but the technical specifications of each must be provided with engineering studies where necessary.

For more information, contact Robert McNamara at (202) 632-7175.

1980 Edition of Inland River Guide Published

The 1980 Inland River Guide is now available from Waterways Journal. This 700-page reference, for use both on boats and in the office, contains categorized data on such diverse subjects as shipyards and repair yards, marine insurance, marine contractors, bridge clearances, and salvage firms. Copies can be ordered for \$ 25.00 from: The Waterways Journal (IRG), 319 N. Fourth St., Suite 666, St. Louis, Missouri 63102. Orders received with payment will be shipped prepaid. Billed orders will have postage costs shown on the statement. \ddagger The following items of general interest were published between March 31, 1981, and April 23, 1981: **Final rules:** There were no final

rules published. Proposed rules: CGD 77-212a

Delaware Bay Anchorage Area, April 16, 1981—reopening comment period/announcement of public hearing.

Advance Notices of Proposed Rulemaking (ANPRMs): CGD 80-119 Puget Sound Vessel Traffic Service, April 13, 1981. CGD 79-159 Tank Stop Valves and Their Controls and Indicators, April 16, 1981.

Notices: CGD 81-014 Person Capacity: Outboard Boats, April 6, 1981. CGD 81-027 Coast Guard Academy Advisory Committee Charter-notice of renewal, April 16, 1981.

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

* * *

Revision of Electrical Regulations CGD 74-125a

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Licensing of Pilots CGD 77-084

This regulation takes into account the problems caused by increased ship size and unusual maneuvering characteristics. The proposal will require recency of service for each route upon which a pilot is authorized to serve, licensing with tonnage limitations commensurate with pilot experience, and consideration of shiphandling simulator training for pilots of very large vessels. A regulatory analysis and work plan were completed in October 1978. The NPRM was published on November 28, 1980 (45 FR 79258), and corrected on December 8, 1980 (45 FR 80843). The following public hearings have been held in 1981: January 14 in Cleveland, Ohio, January 27 in Washington, DC, February 3 in New Orleans, Louisiana, and February 10 in San Francisco, California. Substantial revisions to the proposed regulations are presently being considered.

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

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

Tank Vessel Operations--Puget Sound CGD 78-041

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

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

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

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

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

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

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

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

New NPRMs have been approved by the Secretary of Transportation and were published on December 18, 1980 (45 FR 83268 and 83290). The following public hearings have been held in 1981: January 21 in St. Louis, Missouri, February 4 in New Orleans, Louisiana, February 18 in Long Beach, California, February 25 in Washington, DC, and April 1 in Washington, DC. Substantial revisions to the proposed regulations are presently being considered.

Shipboard Noise Abatement Standards CGD 79–134

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

(Continued on page 91)

A Look at the New

Inland Navigation Rules

(Part 3 of a 5-part series)

This article is the third in a series discussing the major provisions of the new Inland Navigation Rules which will go into effect on December 24, 1981. The new Inland Rules follow the format and numbering system used in the 72 COLREGS. This article will cover Part C-Lights and Shapes. The next two issues of the <u>Proceedings</u> will provide a look at Part D (Sound and Light Signals), Part E (Exemptions), and the five regulatory technical annexes.

PART C-Lights and Shapes

This Part prescribes the configuration and visibility of navigation lights for the various types of vessels as well as navigation lights for vessels in special circumstances.

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Rule 20. Application

This rule is identical to Rule 20 of the 72 COL-REGS. It is similar to the Inland Rule 1, Western Rivers Rule 2, Great Lakes Rule 2, and various Pilot Rules currently in effect but differs significantly in one respect. Under the rules now in effect, various running lights may be used from sunrise to sunset during conditions of restricted visibility. Paragraph (c) of Rule 20 parallels the rules now in effect but requires running lights to be used in restricted visibility during daylight hours.

Rule 21. Definitions

This rule is identical to Rule 21 of the 72 COL-REGS, except that two additions have been made. One permits vessels less than 12 meters in length to place the masthead light and sidelights as nearly as practicable to the fore and aft centerline of the vessel. The other adds the definition of a special flashing light, yellow in color, for use at the head of tows. The rules currently in effect for lights and shapes have been restructured so as to provide for greater clarity. The arc and range of visibility constitute important information that has been included in Rules 21 and 22 and is no longer repeated in every rule. The technical methods necessary to arrive at proper arcs of visibility and ranges, as well as the various vertical and horizontal separations between lights, are matters of primary concern to ship- and boatbuilders. This information will be contained in regulatory Annex I.

The "sidelight" provision in Rule 21(b) is identical to that of the 72 COLREGS but provides an additional exception for a vessel less than 12 meters long.

Under the Inland Rule 10(a) now in effect it is mandatory that the "sternlight" of a vessel be "at her stern." This is of some concern for vessels with a low or unusual stern, such as stern trawlers. Such strict wording is impracticable; therefore, paragraph (c) of Rule 21 allows for locating the sternlight as nearly as practicable at the stern.

Rule 21(d) provides for a yellow towing light. The yellow light is located above, in line with, and in addition to the normal white sternlight. Rule 24 now requires this yellow light on towing vessels on all inland waters.

Rule 21(e) addresses the characteristics of the "allround light." Annex I will prescribe the limitations and acceptable tolerances of construction and positioning.

Rule 21(f) contains an operating specification for a "flashing light." It is important to note that this type of light flashes at the extremely high rate of 120 flashes per minute in order to avoid confusing it with the special flashing lights (50 - 70 flashes per minute) used to mark a tow being pushed ahead. Under the new rules this flashing light is allowed only on air-cushioned vessels operating in their nondisplacement mode as per Rule 23(b).

Rule 21(g) provides for a "special flashing light." This light is currently required—under Rule 24(f) of the Inland Rules and Western Rivers Pilot Rules now in effect—to mark the head of a tow. The rule is new insofar as Great Lakes Waters are Concerned. The purpose of the flashing yellow light is to warn operators of small boats that a tow is approaching. This light could be confused with the lights on aids to navigation because of the 50 - 70 flashes per minute requirements; however, when this light is coupled with the towing lights of the tug, confusion should be minimized. In addition, the light is yellow in color, a color not used for aids to navigation.

Rule 22. Visibility of lights

Rule 22 specifies the visibility of lights. It is identical to Rule 22 of the 72 COLREGS, except for the addition of the special flashing light and the addition of the lights and markings specified in Rule 22(d) for a partly submerged vessel or object being towed.

For vessels 50 meters in length or over, minimum ranges of visibility of all lights have been increased by one mile. For vessels 12 to 20 meters long, sidelight visibility requirements have been increased by one mile. Otherwise, the visibility standards are essentially the same as those in the inland rules now in effect. These visibility requirements will be translated into meaningful manufacturer's language in the form of intensity requirements and will be found in regulatory Annex I.

Rule 22(d) has been added to require partly submerged vessels or objects being towed to show a white light with visibility of three miles. The requirements for positioning of lights can be found in Rule 24(g).

Rule 23. Power-driven vessels underway

This rule is similar to its counterpart in the 72 COLREGS. The changes that have been made are consistent with the inland rules currently in effect. The new rule is easier to read and understand than the current Inland Rule 2, Great Lakes Rule 3, and Western Rivers Rule 7. Power-driven vessels of all sizes and all of the "running lights" will now be conveniently covered by this one rule, as will the masthead or range lights, the sidelights, and sternlights for vessels underway under normal operations. Lights for special operations or special vessels are found in other rules.

Rule 23(a)(i) requires the masthead light to be carried forward, except that on vessels less than 20 meters in length, where only one masthead light is required, the light can be placed forward, amidships, or aft of amidships consistent with the vessel's configuration in order to reduce or eliminate obstructive mast or light glare problems. On these smaller vessels, the placement of the light should not result in any lighting configurations that would adversely affect safety of navigation. This is a change from the 72 COLREGS.

Rule 23(b) requires for the first time that aircushion vessels display a light when operating in the nondisplacement mode. An addition not found in the 72 COLREGS requires this light to be placed where it can best be seen.

Rule 23(c) is a major departure from the 72 COL-REGS. Rule 23(c) of the 72 COLREGS allows placement of an all-round white light in lieu of a masthead light and sternlight on vessels less than 7 meters in length whose maximum speed does not exceed 7 knots. Such a vessel shall, when practicable, also exhibit sidelights. The new rule establishes a 12-meter parameter in lieu of the 7-meter and 7-knot limitation and requires the display of sidelights.

Rule 23(d) is not found in the 72 COLREGS and is a modification of the Great Lakes Rule 3 now in effect. Rule 23(d) permits all vessels to use an all-round 360° after masthead light when operating on the Great Lakes. The use of this optional all-round light was extensively discussed during the deliberations of the Rules of the Road Advisory Committee to the Coast Guard and also later within the Subcommittee on Coast Guard and Navigation. It was controversial because, by giving vessels the option of using the allround light, it detracted from the certainty with which other vessels could identify their type and aspect, thereby making it more difficult to ascertain direction of movement. It could also add to confusion since its use is not permitted on any of the other waters of the United States or the high seas-all of which, it was argued, detracted from the requirements of navigational safety. It was also noted that this was inconsistent with the need to prescribe the same navigation rule for all vessels operating on U.S. inland waters and inconsistent with the need to prescribe rules that followed the International Regulations as closely as possible.

Some Great Lakes interests agreed with the need for uniformity, while others felt that the all-round light provided a greater degree of safety during frequent and prevalent low-hanging fogs, regardless of the extensive use of radar, radiotelephone, and vessel traffic control procedures. They also felt that the allround light (which presently is used as a sternlight, as well) provided a greater range of visibility than a sternlight and therefore added to the degree of safety. While these arguments were recognized as having some validity, the counterarguments were more persuasive. The Advisory Committee, therefore, adopted Rule 23(d), limiting the all-round light to power-driven vessels underway and not extending its permissive use to any of the other rules or any other classification of vessels.

Rule 24. Towing and pushing

This rule is essentially identical to Rule 24 of the 72 COLREGS but contains modifications considered necessary if the rule is to be more consistent with the United States inland rules currently in effect.

Sections (a)(i), (c)(i), and (d) of Rule 24 are also modifications of the 72 COLREGS. They permit the carrying of the two or three white towing lights on either the forward or after mast. If the lights are carried forward, then a masthead light abaft and higher than the forward white towing lights must be carried. If they are carried aft, then a forward 225 masthead light must be carried. The 72 COLREGS requiring the white towing lights to be carried only on the forward mast were considered unnecessarily restrictive. In many cases, the requirement to carry two or three masthead lights on the foremast causes glare problems on the bridge. Since the 1960 International Rules allowed the fitting of the extra masthead lights on the second mast for vessels towing or pushing, it was determined that this provision would also be allowed in the new Inland Navigation Rules.

Rule 24(b) recognizes that marine technology has advanced to the stage where tugs and barges of specific design can be mechanically locked so rigidly in the pushing mode that they can successfully endure high seas operation. The rule says this combination is to carry the lights of a conventional power-driven vessel.

Rule 24(c)(iii) requires two towing lights in a vertical line. This is a continuation of existing policy, according to which a vessel pushing ahead or towing alongside is to display some signal indicating that it is doing so. The 72 COLREGS do not require distinctive stern lighting for vessels pushing ahead or towing The requirement to display two yellow alongside. towing lights eliminates the problem of an overtaking vessel's seeing only a white light and not appreciating the task in which the overtaken vessel is engaged. That could create an unsafe situation, especially in confined waters. The inclusion of the two vellow towing lights is a carryover of the provision in Rule 3(d) of the Western Rivers Rules and the option found in Rule 3(b) of the Inland Rules now in effect.

Rules 24(e) and 24(f) provide for the lighting of objects that are being towed. They are similar to their counterparts in the 72 COLREGS but, in addition, provide for a special flashing light to identify barges being pushed ahead. The Western Rivers and Inland Rules currently in effect require such a light to provide additional warning of a barge's presence. Sidelights and a sternlight will now be required on each barge towed astern in lieu of the white lights required by the inland rules now in effect.

Rule 24(g) is not found in the 72 COLREGS and has been added to prescribe lighting for towed objects which have no place for sidelights and a sternlight but to which an all-round light could be attached. It applies to partially submerged vessels such as the increasingly common dracones (bags that carry liquids). Because the vast majority of this type of towing takes place at slow speeds, the towing of a float with a white light on it is not impracticable. The rule also applies to logs, log rafts, and similar objects being towed. Currently, these situations are addressed in the Pilot Rules in 33 CFR 80.32 (for the Inland Waters), 33 CFR 90.21 (for the Great Lakes), and 33 CFR 95.37 (for the Western Rivers).

Rule 24(h) is identical to Rule 24(g) of the 72 COLREGS. This rule is flexible and in essence does no more than ask the mariner to "give it his best shot" if he is unable to comply with Rule 24(e) or (g), as the case may be.

Rule 24(i) is not found in the 72 COLREGS and applies only on the Western Rivers. It effectively exempts vessels towing alongside or pushing ahead from the requirement to display any white masthead lights when on the Western Rivers. This is a carryover from the Western Rivers Rule 3 currently in effect. It is necessary for a number of reasons. First, in order to provide optimum visibility for the operator, the pilothouse of a towboat on the Western Rivers is commonly designed so that the operator's height of eye is the maximum permitted by the limiting vertical clearances of bridges under which the vessel will pass. Compliance with Rule 24(c) requires an additional vertical masthead light which could cause height interference problems with fixed bridge structures. Second, the use of white lights close to the pilothouse might create excessive reflection and backscatter. which could impair night vision, especially during inclement weather. Third, the greater range of detection afforded by white masthead lights on open waters is often not possible on the Western Rivers because of the frequent bends. The flashing yellow light at the head of tows required by Rule 24(f)(i) could normally be the first light seen by an approaching vessel and is considered adequate under the circumstances. Finally, the sidelights of the towing vessel, along with those on the tow itself, provide an effective indication as to aspect and direction of movement of the tug and tow.

In summation, experience with the rule currently in effect (Western Rivers Rule 3) indicates that there is no need for white masthead lights for towing on the Western Rivers. Under the rule, the Secretary of the Department in which the Coast Guard is operating may designate other waters where the masthead lights will not be required.

Rule 24(j) is not found in the inland rules currently in effect. It was added because in distress situations

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the mariner often cannot comply with the rules for towing lights when he is attempting to render assistance to another vessel.

Rule 25. Sailing vessels underway and vessels under oars

This rule is essentially identical to Rule 25 of the 72 COLREGS, but Rule 25(b) uses a 20-meter parameter in lieu of the 72 COLREGS limitation of 12 meters. In Rule 25(e) sailing vessels less than 12 meters long are allowed to use the day shapes as an optional signal rather than as the mandatory signal required by the 72 COLREGS.

The new rule retains the basic lighting configuration presently required for sailing vessels. However, sailing vessels less than 20 meters in length are given the option of displaying their lights in a combined lantern at the top of the mast. In order to allow for better marking of sailing vessels, which may be running heeled-over-with one of the sidelights very close to the water or obscured by a sail-, all-round red over green lights are permitted. These, however, may not be exhibited in conjunction with the combination lantern. Small sailing vessels less than seven meters in length and not capable of displaying fixed lights may utilize a lantern or torch to make their presence known in sufficient time to prevent collision. Since vessels under oars usually lack power for lighting, the same lighting options are made available to them. Provision is made for the daytime marking of sailing vessels over 12 meters in length when propelled by machinery. Sailing vessels less than 12 meters in length are not required to display the day shape, since they will usually have no way of adequately displaying the conical shape.

Rule 26. Fishing vessels

This rule is identical to Rule 26 of the 72 COL-REGS. Lighting for fishing vessels has thus far not been prescribed for the navigable waters of the United States, except on the waters covered by the Inland Rules currently in effect. Vessels that fish in inland waters often fish upon the high seas also, yet the signals required for these waters have been slightly different. The new rule eliminates the variance in requirements and extends the application of the signal to all the waters of the United States. This is necessary to ensure that vessels intending to claim the rights afforded fishing vessels provide the signal of that intent to other vessels navigating in their vicinity. Other signals are provided to mark the direction of gear extending from the fishing vessel.

Rule 27. Vessels not under command or restricted in their ability to maneuver

This rule contains only some minor modifications to Rule 27 of the 72 COLREGS. Other than on the Great Lakes, there have been no rules for such vessels on the inland waters of the United States. Rule 27 tries to bring some order to the multitude of signals for vessels in the category included in the term "restricted in their ability to maneuver." In general, the rule requires the revision of the lights installed on many working vessels, such as dredges and construction vessels. The rules add a requirement for an allround white light for the restricted maneuverability situation. In addition, the day shapes have been changed for these situations.

Rule 27(c) requires a towing vessel engaged in difficult or severely restricted towing operations to show, in addition to its towing lights, the lights or shapes for a vessel restricted in its ability to maneuver. It is not intended to be used by vessels engaged in routine towing operations to declare that they are restricted in their ability to deviate from course.

Rule 27 (d) introduces a new signal for dredging or other underwater operations, namely a signal indicating a safe or an unsafe side to pass. Vessels engaged in these types of operations will exhibit, in addition to the red-white-red lights, two green all-round lights in a vertical line on their safe side. On a side where an obstruction exists, they will exhibit two red lights in a vertical line, indicating that it is unsafe to pass on this side.

Rule 27(e) introduces the use of a rigid signal, a replica of the international code flag "A," to indicate when a diver is down. This signal is intended primarily for small commercial vessels or recreational vessels which cannot display the signals required by Rule 27(d). The signal is to be at least one meter in height, and steps are to be taken to ensure all-round visibility.

Rule 27(f) addresses minesweepers and requires that the masthead signal and both yard arm signals be shown at all times during sweeping operations, regardless of whether sweeping is conducted from one side only. Rule 27(f) of the 72 COLREGS has been modified by deletion of the words "at or" in the second sentence. These seemed to unnecessarily restrict the location of the all-round green light in relation to the forward masthead light.

Rule 27(g) exempts vessels less than 12 meters long (except those engaged in diving) from displaying both lights and shapes. This exemption recognizes the fact that vessels under 12 meters in length cannot practicably equip themselves with and exhibit the special lights and shapes required by this rule. Rule 27(g) deviates from the the 72 COLREGS in that it changes the less-than-7-meters-in-length qualification to lessthan-12-meters.

Rule 27(h) notes that the signals in this rule are not signals of distress.

Rule 28. (Reserved)

Rule 28 is reserved so that the numbering of the Inland Navigation rules will be consistent with the numbering of the 72 COLREGS. For the reasons given in the comments on Rule 18(d), the provisions of Rule 28 of the 72 COLREGS, relating to vessels constrained by their draft, are not included in these rules.

Rule 29. Pilot vessels

This rule is essentially identical to Rule 29 of the 72 COLREGS, except that a provision has been added recognizing the fact that such vessels may anchor in special anchorage areas where lights and shapes are not required. The rule has been shortened from the Inland, Great Lakes, and Western Rivers Rules currently in effect. The requirement for a white over red light has been retained. The lengthy portion that addressed sailing pilot vessels has been deleted, as have the provisions for displaying flare-up lights.

Rule 30. Anchored vessels and vessels aground

Rules 30(c) through (e), relating to lights for anchored vessels and vessels aground, are identical to their counterparts in the 72 COLREGS and are similar to the U.S. rules currently in effect. Paragraphs (f) and (g), relating to a relaxation of requirements for certain vessels, are not found in the current U.S. rules.

The light and shape requirements for vessels anchored are similar to those in the rules currently in effect. The anchor light will no longer need to be in the forward part of the vessel for vessels less than 50 meters long.

Rule 30(b) gives much-needed flexibility to the placement of an anchor light on small vessels without detracting from safety. Anchored vessels do not include barges moored to a bank or dock. Lights for these vessels may be included in the yet-to-bedeveloped Pilot Rules of Annex V.

Rule 30(c) is a provision not found in the rules currently in effect. It permits the use of deck lights to further illuminate an anchored vessel and is mandatory for a vessel 100 meters or more in length.

Rule 30(d) requires a vessel aground to show the anchor lights and additionally, if practicable, two red lights or three balls in a vertical line. The Great Lakes Rules currently in effect contain a similar provision, but signals for vessels aground do not appear in the Western Rivers or Inland Rules now in effect.

Rule 30(e) exempts small vessels less than 7 meters in length from displaying anchor or aground signals if they anchor out of the way of traffic.

Rule 30(f) exempts vessels less than 12 meters in length from exhibiting the two all-round red lights or the three black balls when aground.

Rule 30(g) adds a provision incorporating Article 11(c)(1) of the old Inland Rules concerning the exhibition of anchor lights when a vessel is anchored in a specially designated anchorage area.

Rule 31. Seaplanes

This rule is identical to Rule 31 of the 72 COL-REGS and is similar to the rules currently in effect. Seaplanes are required to exhibit lights and shapes as best they can. This rule acknowledges the fact that seaplanes are defined as vessels when waterborne.

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

Keynotes (from page 86)

for units contracted after 1988.

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

An NPRM is scheduled for May 1981.

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

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

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

THERE ARE NO PUBLIC HEAR-INGS SCHEDULED FOR JUNE.

> Actions of the Marine Safety Council

> > **April 8 Meeting**

No action was taken on Coast Guard regulatory dockets at the April meeting. 1

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1981 Safety Decal Contest

sponsored by

The Marine and Petroleum Sections of the National Safety Council

1st Prize	A beautiful, custom-designed Gold-on-Walnut Plaque featuring the name of the winner and a sample of the winning decal. Plaque to be presented at the 1981 National Safety Congress in Chicago, Illinois.
2nd Prize	A beautiful, custom-designed Silver-on-Walnut Plaque featuring the name of the winner and a sample of the second-place decal. Plaque to be presented at the 1981 National Safety Congress.
Purpose of Contest	To recognize, on a national level, those companies which are actively promoting safety within their organizations and the industry through the use of safety decals.

RULES

- 1. The contest is open to any and all companies in both the maritime and petroleum industries which have a safety decal in circulation or which develop and submit a decal before the deadline. All decals submitted must relate to safety or skills training (such as first aid, driving a forklift, blowout prevention, etc.).
- 2. Any size decal may be submitted. If there is more than one size of a particular decal, the smallest size available should be sent. Six copies of each entry should be submitted. None of the decals submitted will be returned.
- 3. All decals sent should be mailed with either a letter signed by an official of the company or the business card of the individual submitting the decals. In all cases, the company's name, address, and telephone number and the name of the person to contact should be included with each entry. If one particular individual is responsible for designing the decal, his or her name should also be included.
- 4. All entries must be postmarked on or before midnight September 15, 1981.
- 5. Winners will be notified as soon as possible after the closing date.
- 6. All entries should be mailed to either of the following addresses:

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Tony Accardo c/o Schlumberger Offshore Services 365 Canal Street Suite 2214 New Orleans, LA 70130

Chuck Praznik Salen Protexa Service Co. 11777 Katy Freeway South Bldg. - Suite 300 Houston, TX 77079

Official Judges

There will be a total of five judges: two from the Marine Section, two from the Petroleum Section, and one graphic design artist. All entries will be judged on their overall appeal, application, and ability to communicate a message.

Conquering the Maze: A Proposal for Reorganization of the U.S. Shipping Laws

Forty-four years ago the United States Supreme Court had occasion to refer to the marine safety laws of this country as "a maze of regulation." While many are familiar with this maze, few are aware of its origin, its continuing effect, or what can be done to straighten its twistings and turnings.

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This article describes, in laymen's terms, the legal history of the marine safety and seaman's welfare laws administered by the Coast Guard and provides a glimpse of a massive legislative project now underway in Washington to provide a solution to the maze.

The traditional problems associated with statutory interpretation are, of course, present in the modern shipping code. These traditional problems are simple facts of the legal world: conditions which will endure for as long as there are legal institutions. What distinguishes shipping law is the extent to which the laws, and as a result the people who must obey and administer them, have been victimized. It is not the laws themselves which are oppressive, and it is not the manner in which they are administered which brings on the victimization. Rather, it is the organization of the laws, their format, and their language, which cause massive confusion and puzzlement. It is this confusion that caused the Supreme Court to refer to the laws as a "maze."

Before we discuss the precise effect that the maze has on the shipping world, it should be understood that

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the statutes we speak of here are contained in what is popularly known as "Title 46, United States Code." More than half of the hundreds of sections of law in Title 46 are charged to the administration of the United States Coast Guard. The inspectors, investigating officers, shipping commissioners, and others who perform the "field enforcement" of this huge portion of the "Shipping Code" are faced with the same maze as those who build, man, and operate vessels subject to Federal regulation. The task of learning the law requires awesome patience and years of experience and may well be, for practical purposes, impossible.

The first step to understanding the Federal shipping laws is to trace the history of the maze. Even this requires patience. Many an open-minded person, hearing this piece of legal history for the first time, has refused to believe that it is true. It is.

In the year 1790 the First Congress met in the city of New York. While there, it passed a number of laws, some of which pertained to shipping. At the time, there was no such thing as the "United States Code," no such thing as a "Shipping Code." In fact, the laws were not organized in any manner whatsoever. This meant that if a person wanted to know what the First Congress had done in the field of shipping he simply looked through its entire product. Once such legislation had been discovered, it might be referred to as "Section 1 of the Tonnage Duty Act of 1790," or, perhaps, as "Section 1, Chapter 51, of the Act of July 20, 1790." The organization of Federal law continued in this manner for many years. Laws were passed day after day and were known only by their popular names or by the date of their enactment. As time went on, some laws repealed others and the job of finding out what the current law said became increasingly difficult. Additionally, Congress found it burdensome to

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write new laws which were consistent with existing ones. For instance, does "vessel of the United States" in an 1817 law mean the same thing as a "vessel belonging to citizens of the United States" in an 1830 law? Is either of these the same as "a registered vessel" in a 1794 law?

In the 1840s Congress devised a "solution." All of the laws would be compiled into bound volumes containing tables and indexes. The volumes were called the "Statutes at Large" and, like the laws which they contained, were issued in chronological order. The only real difference made by the invention of the Statutes at Large was that the laws could now be found in a single series of volumes. Thus, Section 1 of the Tonnage Duty Act of 1790, which was located on page 131 of the first volume of the Statutes at Large became known as "I Stat. 131." This was better. It wasn't good, but it was better.

Things continued in this manner until after the Civil War. Congress was learning that there had been so many repeals and so many new enactments that finding the law on a particular subject was a grueling task. So, in 1866, Congress directed the President to appoint three persons "learned in law" as commissioners to "revise" and reorganize the law according to subject matter classifications. Several years later the Commissioners delivered their hotly-debated package to Congress. It consisted of seventy-four subject matter "Titles" ranging from "Civil Rights" to "Foreign Relations." The proposal was called the "Revised Statutes of the United States," and it contained all laws which had been passed since the first act of the First Congress and which remained on the books as of December 1, 1873. That date had been selected as the cutoff for laws to be included in the Revised Statutes. On June 22, 1874, Congress enacted the Revised Statutes into law. In doing so, it repealed all laws which predated December 1, 1873. By the end of 1874 the laws of the United States were contained in a single volume called the Revised Statutes; also, the contents of all seventeen volumes of the Statutes at Large had been repealed. Things looked pretty good. The Federal government now had an honest to

goodness "Code" which collected, according to subject matter, the enactments of the several Congresses. One might expect the story to end here; it does not. There were mistakes.

The original volume of the Revised Statutes, which was published in 1874, contained dozens of errors. For example, one section which was intended to read "For every violation... of this title the offender shall be prosecuted..." appeared in the 1874 edition as "For every violation... of this title the offender shall be persecuted". Congress attempted to remedy this by passing an "Act to Correct Errors and Supply Omissions," but the corrections were incomplete. So, in 1878, Congress produced a new volume of the Revised Statutes entitled "Second Edition." This volume, however correct, did not repeal the first volume; it merely clarified it. The true Revised Statutes, then, are still contained in the 1874 edition.

If you recall that the cutoff date for inclusion in the Revised Statutes was December 1873 and that the Revised Statutes were not enacted until June 22, 1874, it becomes evident that there is an unaccounted-for period of almost eight months during which Congress passed many laws. These laws, and the ones which followed the June 22, 1874, revision, were not placed in the new code. They were just left floating about in a sort of disorganized limbo, for no provision had been made for updating the Revised Statutes or for adding new laws to them. The result: these new laws were placed back in the Statutes at Large, right where they would have gone if the enactment of the Revised Statutes had never taken place.

This meant that immediately after the Revised Statutes were passed someone trying to find the law

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and were known only by their popular

names or by the date of their enactment."

would look in the one-volume Revised Statutes and a new volume of Statutes at Large. By the time the First World War was over, a person trying to find the law had to use the one-volume Revised Statutes and more than twenty new volumes of the Statutes at Large. Congress was now worse off than before. Lawyers, businessmen, and citizens now had more volumes to go through than they did before Congress revised the Statutes.

The answer to this was the "United States Code." Authorized by Congress in 1926, the Code was to become the fifty-title compilation of the law which is in general use today. Unlike the Revised Statutes, the United States Code was "adopted" rather than enacted. That is, the Code did not repeal or replace earlier law. It merely restated existing law in a new and more convenient subject matter format.

The United States Code was designed to simplify access to the law; it did not truly "codify," nor did it repeal, existing law. This new code classified all laws relating to merchant vessel safety under Title 46 U.S.C., "Shipping." But, since the U.S. Code did not repeal existing law, the actual statutes were still contained in the Revised Statutes and the Statutes at Large. This is the case today. The volumes used by most maritime lawyers are either the "United States Code", an official descendant of the 1926 restatement, or the "United States Code Annotated" and the "United States Code Service," both unofficial annotated versions. The person who wants to find, in a single volume or series of volumes, the currently accurate text of the Federal law governing commercial shipping is out of luck. No such volume exists. Furthermore, none will exist until Title 46, United States Code, is enacted as the law itself and all predecessor statutes are repealed. When this happens, Title 46 will become "positive law."

At present, 19 titles have been enacted into positive law. One, Title 34, Navy, has been incorporated in Title 10, Armed Forces. General authority to prepare and publish editions of the United States Code is given to the Office of the Law Revision Counsel under 2 U.S.C. 285. Interestingly, Congress requires the Counsel to "... develop and keep current an official and positive codification of the laws of the United States," and to "remove ambiguities, contradictions, and other imperfections." As will be seen, this has not been done.

A few examples of the difficulties brought on by the absence of a comprehensive codification scheme are appropriate and will serve to illustrate some of the common defects. First, a look at ambiguous terminology.

When the Revised Statutes were enacted in 1874, they contained a section which purported to define the term "steam vessel" for Title 52, the steam vessel part of the volume. The section was R.S. 4399 and it read: "Every vessel propelled in whole or in part by steam shall be deemed a steam vessel within the meaning of this Title." As the years passed and vessels began to be equipped with propulsion machinery other than steam engines, it became desirable to include these newer ships in the group of vessels covered by the inspection laws. The solution devised was to pass an amendment to R.S. 4399 which would re-define as "steam vessels" all vessels propelled by any kind of machinery. Thus, R.S. 4399 was amended, in 1933, to read "propelled in whole or in part by steam or any other form of mechanical or electrical power." While there is nothing inherently incorrect or inappropriate about this change in wording, the 1933 amendment went on to change the phrase "this Title" to "this Act." The

"These laws . . . were just left floating

about in a sort of disorganized limbo"

reason for this change has been lost. Its effect, however, was disastrous. It is easy to see that in the

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original language "this Title" meant "Title 52, Revised Statutes" which, interestingly, was entitled "Regulation of Steam Vessels." However, what was meant by "this Act"? If it meant the amending Act of 1933, then "steam vessel" was defined only for the purpose of its own definition. If it meant the Act which was changed by the 1933 amendment, then "this Act" was the Act of June 22, 1874, which created the Revised Statutes. This, too, created a problem, for to interpret "this Act" as the 1874 Revised Statutes would give rise to other, far more complex interpretational difficulties. For instance, if "within the meaning of this Act" means "anywhere in the Revised Statutes," does it also mean anywhere in the Statutes at Large which amended or added to the Revised Statutes?

The "this Act" problem eventually wound up in court where, misled by the incredibly confusing state

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language . . . "

of the law, the court determined, in a somewhat seatof-the-pants fashion, that "this Act" meant a certain chapter of the newly adopted U.S. Code. This was a stunning result, for it meant that by the 1933 amendment Congress was addressing something that was not even the law, i.e., the U.S. Code. Use of the words "this Act" has caused similar problems in other contexts, but for now let it suffice to point out the confusion it has caused in the Federal shipping laws.

A more recent statute serves as yet another example of the ambiguities created by statutory organization. The Port and Tanker Safety Act of 1978 reads in part: "(7) Minimum standards. - In issuing regulations pursuant to subsection (6), the Secretary shall require that any self-propelled vessel shall, as a minimum-" the Act then lists 14 categories designated "(A)" By far, category (N) is the most through "(N)". interesting: "in accordance with relevant international agreements to which the United States is a party, exempt vessels from the minimum requirements established in this subsection for [segregated ballast, washing systems, etc]." If we reduce this language to its essential parts it reads like this: "The Secretary shall require that any self-propelled vessel shall exempt vessels from the minimum requirements." It is doubtful that the purpose of the act was to empower ships to exempt other ships from the requirements, but that is certainly what it says.

One final example should make it clear that the format and organization of the shipping laws give rise to problems in a number of ways. Let us suppose that a shipping company official wants to determine whether one of his company's vessels sailing in the "coastwise trade" is required to use shipping articles in engaging its crew. If the official uses the company copy of the most recent United States Code Annotated he will read, in § 544:

§ 574 Shipping Articles in the Coastwise Trade

Every master of any vessel ... bound from a port in one state to a port in any other state, except vessels ... bound from a port on the Atlantic to a port on the Pacific, or vice versa, shall, before he proceeds on such voyage, make an agreement with every seaman on board such vessel ... declaring the voyage or term of time for which such seaman shall be shipped.

This seems pretty clear. Apparently, shipping articles are required. But, if the same official turns, in the same volume, to § 544 he will see:

§ 544. Vessels in Coastwise Trade

None of the provisions of sections 201-203, 541-543, 545-549, 561, 562, 564-571, 574, 577, 578, 591-596, 600, 621-628, 641-643, 644, $\overline{645}$, 651, 652, 662-669, 701-709, 711, 713 of this title shall apply to sail or steam vessels in the coastwise trade, except the coastwise trade between the Atlantic and Pacific coasts. [Emphasis added]

Apparently, § 574 requires shipping articles for most vessels in the coastwise trade and § 544 exempts vessels in the coastwise trade from § 574. It makes little sense. There is an explanation for this, and shipping articles are required for vessels in the coastwise trade, but the explanation is quite complex and requires so much space that, for the purposes of this discussion, it is better left a mystery.

In summary, if you are looking for the law of shipping you are faced with a real job. For many purposes the non-positive United States Code and its annotated companions may be adequate to provide a

"The person who wants to find, in

a single volume or series of volumes,

the currently accurate text of the

Federal law governing commercial

shipping is out of luck. No such volume

exists."

general idea. But they are not the law. The law is hidden away in the ancient Revised Statutes and more than sixty-five volumes of the Statutes at Large which have amended, and supplemented, the 1874 Revised Statutes.

This is more than an interesting piece of legal history. It is the source of confusion, puzzlement,

inevitable disagreement, and litigation. Without a doubt, no area of Federal law is more confusing than that administered by the Coast Guard in its commercial vessel regulation programs. One consequence of the complexity of the law is the difficulty of enforcing it and, perhaps, the difficulty of obeying it. Coast Guard officers new to the commercial shipping regulation specialty require extensive training. Questions frequently arise which require the special expertise of a very small number of agency personnel who, after thirty or forty years' experience, have come to "know" Title 46. A kind of common-sense understanding supported by custom and tradition accepted by the industry has served to avert utter chaos in the admin-

> "... they are not the law. The law is hidden away in the ancient Revised Statutes and more than sixty-five volumes of the Statutes at Large which have amended, and supplemented, the 1874 Revised Statutes."

istration of these laws, but it cannot safely be predicted how much longer the strain can be survived.

Another result of the complexity of Title 46 is that it has proved to be among the most difficult to enact as "positive law." The first attempt to "codify" Federal shipping law came in 1929, shortly after the adoption of the United States Code. That effort failed for reasons which have now become obscure. Α similar effort in the late 1940s also met with no success. In the early 1960s the Commandant of the Coast Guard, partially in response to the urgings of the Senate Commerce Committee, assembled a special team of three attorneys to draft in positive law form, without making "substantive changes of a controversial nature," a restatement of Title 46. This group worked diligently for almost three years and, in 1967, presented to the Commerce Committee a draft of "A Bill To Consolidate And Re-enact Certain Of The Marine Safety And Seaman's Welfare Laws Of The United States." The draft received widespread approval and would have placed all of the commercial vessel safety law in a single, easily usable format for the first time in almost one hundred years. However, in the administrative upheaval resulting from the creation of the new Department of Transportation, the Bill was scrapped.

Things remained unchanged from 1967 until 1971, when yet another restatement was attempted and eventually shelved. No work was started again on the project until the spring of 1980, when the present Commandant designated the redrafting and simplification of the shipping laws as one of his "milestone projects." A draft proposal, based largely on the 1967 Bill, has now been prepared and is under scrutiny at Coast Guard Headquarters.

Two elements in the intended format are worth noting. One is the reorganization of related material into units. An example is the treatment of the Federal Boat Safety Act, which cuts across the areas of safety equipment for recreational vessels, manning of certain commercial passenger carrying vessels, identification of undocumented self-propelled vessels, and negligent operation of all vessels. The intent to reorganize these matters with others of related or supplementary application is reflected in the accompanying outline.

The other element is the tailoring of language to facilitate both temporary inclusion in the U.S. Code and ultimate assimilation into a truly "codified" title. The substitutions made necessary by non-statutory reorganization plans and other transfers of authority have frequently caused confusion in the shipping industry, especially since 1946. Terms used in this draft restatement, as well as the internal cross references, have been designed to present the Code editors with the least need for editing and to minimize potentially confusing terminology.

OUTLINE OF A BILL TO CONSOLIDATE AND RE-ENACT CERTAIN OF THE MARINE SAFETY AND SEAMAN'S WELFARE LAWS OF THE UNITED STATES

CHAPTER I. GENERAL

Definitions; applicability; authority of the Secretary; collection and remission of civil penalties; administration of marine safety laws; authority to issue regulations.

CHAPTER II. OPERATION OF VESSELS GENERALLY

Applicability; general requirements; reckless or negligent operation; lending assistance after collision; authority to issue regulations; violations and penalties.

CHAPTER III. INSPECTION AND REGULATION OF VESSELS

Subchapter 1. Definitions and Classes of Vessels

Subchapter 2. Inspection Generally

Applicability; vessels subject to inspection; application of standards to foreign vessels; scope of inspection; periods of inspection; certificate of inspection; protection of informants; authority to issue regulations; violations and penalties.

Subchapter 3. Carriage of Passengers

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Applicability; number of passengers permitted; use of fire-retardant materials; promotional literature and advertising; prevention of departure; authority to issue regulations; violations and penalties.

Subchapter 4. Carriage of Bulk Dangerous Cargoes

Applicability; minimum standards for tank vessel operations; minimum standards for tank vessel equipment; application of standards to U.S. vessels; application of standards to foreign vessels; exemption from standards; authority to issue regulations; violations and penalties.

Subchapter 5. Carriage of Animals

Applicability; authority to issue regulations; accommodations for export animals; violations and penalties.

Subchapter 6. Uninspected Vessels

Applicability; signalling and safety equipment; life preservers; authority to issue regulations; violations and penalties.

Subchapter 7. Recreational Vessels

Applicability; inspection and repair of recreational vessels; material standards for construction; boating safety programs for the states; funding; authority to issue regulations; violations and penalties.

CHAPTER IV. LOADLINES

Applicability; determination and marking of loadlines; regulation of foreign vessels; loadline certificates; detention of vessels; violations and penalties.

CHAPTER V. INVESTIGATION OF MARINE CASUALTIES

Subchapter 1.

Reporting marine casualties; violations and penalties.

Subchapter 2. Investigation of Marine Casualties

Parties to investigations; procedure for investigations; public nature of proceedings; subpoenas; reports of investigations.

CHAPTER VI. LICENSING AND CERTIFICATION

Subchapter 1. Licenses and Certificates of Registry

Authority to classify and issue licenses; categories of licenses; basic requirements for licenses; citizenship of applicants; radio officers; staff officers; duration and renewal of licenses; exhibition of licenses; fees; exemption of licensed officers from draft.

Subchapter 2. Merchant Mariner's Documents

Issuance of merchant mariner's documents; possession of merchant mariner's documents; citizenship of applicants; able seamen; lifeboatmen; entry ratings; tankermen; record keeping.

Subchapter 3. Special Procedures for Issuance

Duplicate documents; records; grounds for denial of documents or licenses.

Subchapter 4. Suspension and Revocation

Bases for suspension or revocation; hearing procedure; narcotic violations; subpoenas.

CHAPTER VII. MANNING OF VESSELS

Subchapter 1. General

Complement of vessels; reports required; watchmen; watches, duties, hours; muster of crew.

Subchapter 2. Masters and Officers

Minimum number of officers; staff department; requirement for masters.

Subchapter 3. Pilots

Definitions; state regulation of pilots, generally; Federal pilots on coastwise-registered vessels; state regulation of pilots prohibited on Great Lakes; Great Lakes pilotage requirements; authority to issue regulations; violations and penalties.

Subchapter 4. Unlicensed Personnel

Number required; tankerman requirements.

Subchapter 5. Operators

Requirements for passenger vessels; requirements for towing vessels; exemptions.

Subchapter 6. Manning for Foreign Vessels

Qualifications; officer's competency certificates; violations and penalties.

CHAPTER VIII. PROTECTION AND RELIEF OF MERCHANT SEAMEN

Subchapter 1. General

Designations; duties; definitions.

Subchapter 2. Foreign and Intercoastal Voyages

Applicability; shipping articles; scale of provisions; form of agreement; posting agreement; seamen lost by death or desertion; discharge; wages and settlements; advances; allotments; trusts; liens; authority to issue regulations; violations and penalties.

Subchapter 3. Coastwise and Nearby Foreign Voyages

Applicability; agreements; discharge; wages and settlements; advances; trusts; authority to issue regulations; violations and penalties. Subchapter 4. Effects of Deceased Seamen

Applicability; duty of master; duty of consular officials; disposition of unclaimed wages and effects; violations and penalties.

Subchapter 5. Proceedings on Unseaworthiness

Applicability; complaints of unseaworthiness; examination of vessel; duty of consular officer; violations and penalties.

Subchapter 6. Protection and Relief

Medicine; slop chests; destitute seamen; wages; taxes; attachments of wages; judgments against seamen.

Subchapter 7. Offenses and Punishments

Various offenses; duty of consular officials; entry of offense in logbook; forfeitures.

Subchapter 8. Death or Injury of Seamen

Recovery for personal injury; jury trial.

Subchapter 9. Official Logbooks

Required entries; times for making entries; manner of making entries; violations and penalties.

CHAPTER IX. ADMEASUREMENT OF VESSELS

Manner of calculating tonnages; exemptions; re-measurements.

CHAPTER X. DOCUMENTATION OF VESSELS

This is the general shape that the Coast Guard's proposal will take. By the time this article is published, the actual text of the proposed legislation will have been examined by a number of senior personnel at Coast Guard Headquarters and several dozen individuals assigned to Coast Guard commercial vessel safety activities in a number of major port cities. Additionally, preliminary meetings with representatives from industry and labor groups located in the Washington, DC, area will have begun.

It is extremely important to emphasize that this proposal will in no way alter the authority or responsibility of the Coast Guard. It contains no attempts to expand the present regulatory powers or to diminish the scope of the agency's missions. The proposal was developed under the guideline that it make "no substantive change of a controversial nature." This rule has been strictly adhered to. Therefore, it is a bit misleading to call the proposal a "revision" of the law or a "re-codification" of the law. Actually, it is a "restatement" or "reorganization" effort designed to take the "maze" out of Federal commercial vessel safety regulation.

Marine Safety Council Membership

Rear Admiral Clifford F. DeWolf, who was profiled in the December 1980 issue of the <u>Proceedings</u>, will be leaving Coast Guard Headquarters in June to assume the post of Commander of the Thirteenth Coast Guard District in Seattle, Washington. Replacing him as Chief Counsel (and, thus, Chairman of the Marine Safety Council) will be Rear Admiral Edwin H. Daniels.

Rear Admiral Edwin H. Daniels graduated second in the Coast Guard Academy Class of 1953 and was commissioned an Ensign in the United States Coast Guard. He served three years on weather patrol on USCGC ABSECON in various deck assignments and qualified for assignment to engineering duty aboard diesel-powered vessels.

He next served one year of isolated duty as Commanding Officer of the LORAN Station Cape Christian, Baffin Island in the Canadian Arctic, followed by three years as Senior Controller in the Rescue Coordination Center of the Seventh Coast Guard District in Miami.

From Miami, he went to George Washington University Law School in Washington, DC. He graduated in February 1963 and became a member of the Bar of the District of Columbia. From March 1963 through February 1965 he served as Assistant Legal Officer for the Third Coast Guard District in New York City. This tour was interrupted by the 10 months then Lieutenant Commander Daniels served on temporary duty as the Coast Guard Liaison Officer to the American Consul General in Nassau, Bahama Islands, during the Cuban crisis.

Following a tour of duty as Executive Officer aboard the cutter HALF MOON, he served for three years as Legal Officer for the Seventh Coast Guard District. He received the Coast Guard Achievement Medal in 1971 while assigned as Commanding Officer of the Cutter DILIGENCE, homeported in Key West, Florida.

In July 1975, after four years' service as Legal Officer for the Third Coast Guard District and Atlantic Area, where he was awarded the Coast Guard Commendation Medal, then Captain Daniels became the Commanding Officer of the Coast Guard Support Center on Governors Island. During his tour there, the Support Center was awarded the Coast Guard Meritorious Unit Citation for its role in New York Harbor's Operation Sail 1976. Upon completion of his three years as "Mayor" of Governors Island, then Captain Daniels was awarded the Coast Guard Meritorious Service Medal.

Moving to Washington, DC, in August 1978, he became Special Assistant to the Chief Counsel at Coast Guard Headquarters. In October 1978, he was inducted into the Coast Guard Academy Athletic Hall of Fame.

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Photo by PAC James T. Perkins, Ninth Coast Guard District

On March 31, 1981, then Captain Daniels assumed command of the Ninth Coast Guard District.

Rear Admiral Daniels has also been awarded the Coast Guard Expert Pistol Medal, the National Defense Service Medal with bronze star, the Arctic Service Ribbon, the Coast Guard Unit Citation, and the Coast Guard Commendation Ribbon.

The new Chief Counsel is the son of the late Lieutenant Commander and Mrs. Cecil E. Daniels, USCG (Retired). He married the former Rebecca Plemmons of Asheville, North Carolina, after her graduation from East Carolina University. The Daniels' have four children: Edwin, Jr., LTJG, USCG, (now attending school en route to assuming the post of Commanding Officer of the POINT ESTERO), Nan Elizabeth (now serving an internship in occupational therapy), Celia Catherine (completing her sophomore year at East Carolina University), and Amy Susan (still attending high school, where she just completed her freshman year).

A Marriage of Marine Safety

by Lieutenant William J. Barker

A milestone was reached in the development of the Coast Guard's new Marine Safety Information System (MSIS) when the sixth office was recently brought online (hooked up) and given the capability of entering data. This brings all Marine Safety Offices (MSOs) and Marine Inspection Offices (MIOs) in the Eighth Coast Guard District, the Gulf Coast, on-line in the Test and Evaluation phase of the project. Each of these offices is using computer terminals to enter commercial vessel inspection information and then print Certificates of Inspection which are generated from this data. This system will act as the master record keeper for merchant vessels under the jurisdiction of the Coast Guard. In other words, all files will become electronically stored in a central location and thus be available for access by anyone in the Coast Guard in seconds.

This system has been under active development since the mid-1970s. It is designed to ultimately connect, via a data transmission network, all Coast Guard MIOs, Captain of the Port Offices, MSOs, district offices, and Headquarters. A telecommunications network will link these offices to the Coast Guard's Operational Computer Center. While this "ultimate goal" is several years away, the system is gradually building to that end by giving limited capabilities to field offices as the system is developed.



A clerk retrieves vessel information for a Coast Guard inspector who is about to go out on a job.



A clerk types information into an MSIS terminal.

Such a system was envisioned as far back as 1973. Initial action took the form of a research and development contract awarded to Battelle Columbus Labs for the preliminary design of a "Vessel Inspection Information System." As the magnitude of the vessel inspection program developed, vital supporting functions began to be included, and the name was changed to the Marine Safety Information System (MSIS) to reflect the greater overall scope.

In 1976-77, with the rash of tanker groundings and other assorted casualties, past boarding information became critically important to the Coast Guard. In March 1977 the Coast Guard was directed by a presidential mandate to develop a Marine Safety Information System. The ongoing MSIS project was surveyed for possible immediate implementation. Because of the intricacies of the project and the vastness of its scope, it was determined that the MSIS would not be completed in time to satisfy the presidential deadline. As a result, an interim system, molded from the existing Port Safety Reporting System, was created. This system, called the Interim Marine Safety Information System, required extensive programming changes. It has valiantly held on while the MSIS project has continued separately.

In October 1979 the Marine Safety Information and Analysis Staff (G-MA) at Coast Guard Headquarters received the first terminal for software review. In

Convenience: and Computers



- OVER 200 DIFFERENT ON-LINE PRODUCTS
- OVER 180 DATA BASE FILES
- OVER 3200 UNIQUE DATA ITEM KEYS
- OVER 6 MILLION TRANSACTIONS PER YEAR
- OVER 30 BILLION CHARACTERS TRANSMITTED PER YEAR
- 200-300 MILLION CHARACTERS OF ON-LINE STORAGE
- OVER 100,000 HOURS CONNECT TIME
- OVER 150,000 EVENTS/ACTIVITIES REPORTED PER YEAR
- ENCOMPASSES SEVERAL, HUNDRED PAPER FORMS
- INTERFACES TO 8,000-10,000 COAST GUARD PERSONNEL
- EXTENDS TO OVER 100 GEOGRAPHICAL LOCATIONS
- HOSTS MORE THAN 235 TERMINALS

The table above describes MSIS as it will be when the system is fully implemented.

May 1980 MSO Galveston field-tested the system. During the fall of 1980, nine offices were brought online with retrieval capability. They had access to a "library" of information on 15,000 U.S. vessels and 12,000 foreign vessels. The small quantity of information available on each of these vessels was continuously added to and expanded by clerks at Headquarters.

In February 1981 MIO New Orleans became the first field office to actually enter inspection information and to generate a Certificate of Inspection from the system's data base. After a two-month trial period, MSO Corpus Christi and MIO Houston were also given entry capability. In May the last three offices which deal with vessel inspections in the Gulf of Mexico were brought on-line: MSO Port Arthur, Texas, MSO Galveston, Texas, and MSO Mobile, Alabama.

Together these offices account for 40 percent of the national workload of the Coast Guard's commercial vessel safety program. This information is now readily available to other Coast Guard offices which have an MSIS terminal. The information entered by

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the on-line offices represents an annual workload activity of approximately 4300 U.S. vessel inspections, 1800 foreign vessel examinations, and 300 newconstruction cases.

Modern office management techniques have been incorporated in such a way that MSIS will come on line using up-to-date equipment. Even more important, the system will keep pace with the ever-changing roles of the Coast Guard through the rest of this century. By converting manually maintained paper reports and files to electronic reports, centrally maintained and available nationwide at the push of a button, the Coast Guard will move from 1960s-level technology to a system incorporating the latest technological advances. MSIS is not promoting the introduction or collection of new or additional information but. instead, is the means for better management of the information already at hand. In addition, the system is designed to be easy to use, so that every individual in an MSO can operate it.

Generally speaking, MSOs will receive much more from the system than they will be required to put into it. In fact, most input will be nothing more than data similar to that already being collected today. For example, instead of typing a Form CG-3821, Merchant Vessel Inspection (MVI) Record, on a typewriter and mailing it to Headquarters, where it is coded and computerized, a person will now be able to type the information into an MSIS terminal, where it will be



MSIS uses cathode ray tube terminals to process information quickly.



Left: the MSIS network presently consists of 16 terminals in 8 locations. Right: the full network will comprise 235 terminals in cities throughout the United States.

automatically coded and electronically transmitted to Headquarters. The payoff is that anyone in the field will have immediate access to all MVI reports that have been sent out on all the vessels inspected by the Coast Guard. Past inspection information can be called to the screen and, after appropriate changes are made, a new Certificate of Inspection generated; this will eliminate the need to retype any unaffected portions. In addition, the three Certificates of Inspection presently being used have been combined into a single document.

These are just three examples of the advantages of the MSIS. Others include creating tickler files which will automatically send reminder notices, ending duplication in report information, and, most important, making all of this information available to the entire Coast Guard, literally at the touch of a button. No more phone calls, rapid drafts, or time-zone problems. No more problems associated with a vessel's records' being located in another office's files.

Operationally, MSIS will control and maintain information on the following Coast Guard programs: plan review, construction inspections, documentation actions, vessel inspections, port safety (boardings, foreign vessel examinations, and facility examinations), casualty investigations, and pollution incident investigations. Each of these activities shares a common data base, so that information entered into one is automatically posted to all other relevant files.

The only information left to be fed into the system by a field office will be information from office tickler files such as pending vessel deficiency notifications or dates of scheduled inspections or boardings. Already loaded into MSIS are existing computerized files for inspected vessels and documented vessels and vessel information received on computer tapes from such sources outside the field offices as the American Bureau of Shipping and Lloyds Register. Vessel characteristic information is thus provided for foreign vessels as well as U.S. vessels. As much existing computerized information as possible has been put into MSIS to preclude manual loading at the field level. One of the primary considerations has been to ensure that MSIS impose no additional workload on the field offices, but rather allow for the dissemination of information and the preparation of routine letters and reports with a tremendous savings in time and effort. It should also greatly increase the accuracy of Coast Guard information and analytical reports.

The future of MSIS in the Coast Guard is wide open. The "generator" used to create MSIS is a computer program that can itself write programs and therefore offers the Coast Guard the capability of producing similar systems using the state-of-the-art techniques employed by MSIS. These systems may be used in any number of ways, as yet mostly unexplored. They might be used to maintain Coast Guard vessel maintenance records, for example, or something even more removed, like clothing locker inventories. If used to its fullest advantage, MSIS may be the greatest thing that ever happened to the Marine Safety Program. ‡

About the Author

A 1973 graduate of the U.S. Coast Guard Academy, LT William J. Barker served at sea aboard the USCGC MUNRO (WHEC 724). He then served as a Coast Guard Marine Inspector and Investigator in Seattle, Washington. While stationed the past three years at Coast Guard Headquarters in Washington, DC, he has been intimately involved in the final design of the MSIS and is now tasked with deploying it throughout the Coast Guard.



An oil service vessel sank in the Gulf of Mexico after becoming fouled with a mooring buoy. The hull of the vessel was punctured and subsequently flooded. The crew was rescued prior to the sinking.

The Captain of the vessel had been recently hired and had made two instructional trips to the company's platform. On a windy but clear December night, he made his first bona fide trip as Captain. The vessel was not equipped with LORAN or a radio direction finder (RDF) but had radar and a fathometer available for navigational assistance. After several hours, he approached what he thought was the company's platform. He got close enough to read the name and found that it was not the right rig. He also observed that a drilling tender was moored alongside and realized that it probably had numerous anchors out. In fact, it had nine anchors set in all directions. The Captain attempted to maneuver away, guided by the deck hand, who was shining the spotlight in the water. Suddenly the vessel's engines stopped. The Captain discovered that his propellers were fouled in the wire rope leading from the tender to one of the mooring buoys. To compound his problems, a large raft buoy attached to the wire was floating alongside.

All efforts to clear the vessel or to fend off the raft buoy failed. After several hours of pounding, the vessel was punctured by the buoy in way of the engine room, lazarette, and generator room. Although the crew started the pumps and made every attempt to maintain the vessel's watertight integrity, the vessel began to sink by the stern. It sank soon after the crew abandoned ship to rescue vessels.

This casualty, besides offering an example of the hazards one is likely to encounter, demonstrates the importance of being thoroughly familiar with one's area of operation and the need for accurate navigation. The ever-changing complexion of the Gulf of Mexico oil fields poses unique hazards to the mariner, requiring constant vigilance and professional seamanship of the highest order.

An oil company marine maintenance and planning supervisor lost his life in an East Coast shipyard when he fell from a tanker's main deck to the dock after being struck by a stream of water. The vessel was docked at the shipyard, undergoing repairs. At the time of the accident the vessel's cargo and ballast piping system was being hydrostatically tested. A flexible $2\frac{1}{2}$ -inch hose was fitted between a portable electric pump and the vessel's cargo piping manifold. The pressure on the system was between 150 and 230 psi. The flexible hose pulled out of its coupling at the manifold, and a powerful stream of water shot out of the $2\frac{1}{2}$ -inch adaptor on the manifold. The maintenance and planning supervisor was hit by the stream of water and knocked over the vessel's railing onto the dock, where he struck his head on an electrical box.

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He died of a fractured skull.

Before the hydrostatic tests were conducted, the cargo and ballast piping systems were purged of air (three vents on the loading manifold were opened, and the system was filled with water until it overflowed through the vents). The vents were closed after water had continued to run into the system for an undetermined period of time. The portable pump was then hooked into the system and the pressure on the system ordered maintained at 150 psi. Witnesses stated that the pressure fluctuated between 150 psi and 230 psi. During inspection of the piping systems and before the accident, it was noted that a bonnet valve was leaking air, indicating that air was trapped in the piping system.

The flexible hose being used was a $2\frac{1}{2}$ -inch single jacket, heavy-duty, neoprene-covered fire hose with coupling attached. This type of hose is tested by the manufacturer at 400 psi, and the recommended working pressure is 35 percent of test pressure (140 psi). The hoses are made in 50-foot sections. The hose involved in this accident was found to have been only 48.5 feet long. It is suspected that the hose had been recoupled at the shipyard, which was equipped for such a repair. When this is done, the hoses are tested by the shipyard at 150 psi and tagged indicating that the hose is "OK."

Inspection of the hose revealed no excessive wear, and it appeared to be in good condition. There was some damage to the hose jacket at the end which separated from its coupling.

High-pressure hoses were available at the shipyard for the purpose of conducting tests such as the one being conducted at the time of the accident. It is not known why the crew did not avail itself of these.

The railing in the area where the maintenance and planning supervisor fell was the collapsible type with two chain courses. The lowest point on the top course of chain was measured at 31.5 inches. Coast Guard regulations (46 CFR 32.D1-10(a)) require the top course to be at least 39.5 inches high. The original construction of the vessel included rigid railings in this area; these, however, had later been replaced with the chain rails. The change had not been approved by the Coast Guard.

The deceased was 6'1'' tall and weighed 196 pounds. Using the NASA Bioastronautics Data Book, the investigator of the accident determined that the man's center of gravity was 40.43 inches above the deck. This means that 65 percent of his body mass would have been above the 31.5-inch-high railing. Had the railing been 39.5 inches high, for example, only 55 percent of his body weight would have been above the railing.

The investigator could not determine exactly why the hose parted, but the facts show that the hose was being used at pressures exceeding the level recommended by the manufacturer. He concluded that air had been trapped in the piping system and that when the flexible hose separated from the coupling, the air, under pressure, rapidly expanded, pushing the water out of the manifold with great force. This stream of water knocked the supervisor over the railing and onto the dock. The investigator concluded that the combination of reduced rail height and the fact that the rail was made of chain were possible contributing factors to the death of the supervisor.

This casualty demonstrates the importance of using the proper equipment for the job. In addition, it points out the dangers associated with testing equipment under pressure. The failure of another fitting in the piping system could have easily resulted in injury or death, since the force of the expanding air could have turned the parts into lethal missiles. Persons hydrostatically testing systems under pressure should make sure that all air is purged before putting the system under pressure. Finally, the consequences of altering the rails points out the need for maintenance and for caution on the part of shipboard personnel when altering required safety equipment. This would include getting approval from the Coast Guard for alterations. A seemingly insignificant alteration may produce an unsafe condition under unforeseen conditions.



The Captain of the entangled oil service vessel shown above mistakenly thought he was approaching his own company's rig. Familiarity with the area of operation and accurate navigation are a must for mariners in the Gulf of Mexico.

June 1981

Chemical of the Month

Acrylonitrile: CH₂CHCN

synonyms:	vinyl cyanide propenenitrile cyanoethylene ACN
Physical Properties	77.0 ⁰ C (171 ⁰ E)
freezing point:	$-83 A^{\circ}C (-118^{\circ}F)$
venor pressure at	-05.4 (-110 1)
20°C (68°F):	0.11 atm
flash point (open cup)	0
pure:	$7.2^{\circ}C(45^{\circ}F)$
commercial:	$0^{\circ} C (32^{\circ} F)$
autoignition temperature:	481 °C (898 °F)
Threshold Limit Values	
time weighted average:	2 ppm
short term exposure limit:	none
Flammability Limits in Air	
upper flammability limit:	17%
lower flammability limit:	3%
Densities	
liquid (water = 1.0):	0.81
gas (air = 1.0):	1.8
Identifiers	
U.N. Number:	1093
CHRIS Code:	ACN

Acrylonitrile is a chemical intermediate, one of those chemicals which are produced to make other products; it is used in making acrylic fibers (textiles), plastics, and elastomers. Acrylonitrile is a liquid at room temperature and reacts with itself (polymerizes) or with another intermediate (copolymerizes) to produce a substance used in such consumer goods as clothing, tubing, food trays, and shoe soles. The chemical does not occur naturally; it was first synthesized in 1893 by the French chemist Ch. Moureau. Acrylonitrile first became an important chemical during World War II, when it was used to make oil-resistant rubbers. Until the 1960s production was small, but the price fell and production increased rapidly after a new synthesis process was introduced. The name acrylonitrile is in itself interesting; legend has it that a chemical company once applied for permission to ship the substance, using what to chemists is the more logical name vinyl cvanide. The request was denied-cvanides were "too dangerous." Naturally the regulators approved the request when it was resubmitted the following yearunder the name "acrylonitrile."

Acrylonitrile is fairly volatile, meaning that when

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it is spilled it will partially evaporate. Acrylonitrile is a triple threat: it burns, it poisons, and it violently polymerizes. Since the chemical's flash point is 32° F, the vapor becomes flammable at any temperature above the freezing point of water. In fact, the vapor can burn so rapidly that it appears to explode, especially in a confined area. The flammability range is wider than that of gasoline, for example, and ignition will take place any time a flame is exposed to a concentration of 3% to 17%. While alcohol foam, dry chemical, and carbon dioxide can extinguish the flames, it should be remembered that the vapor will still be flammable and toxic; sometimes it is better to let a spill burn itself out.

Acrylonitrile is toxic in both its liquid and vapor states. It is classified as carcinogenic for man. While the liquid can damage the skin, its high volatility reduces the chances of skin absorption. It can be absorbed through unprotected shoes, leading to foot burns. Gloves, goggles, and protected footwear should always be worn by those handling this substance. The vapors are highly toxic, too, and, because of the carcinogenic and noncarcinogenic toxicity of the chemical, it is recommended that the workplace exposure not exceed 2 ppm. Symptoms of exposure include headache, vomiting, light-headedness, and eye irritation. Fortunately, apart from the cancer effects, the effects of exposure are temporary-if a person survives, no permanent damage will be done. The best first aid for someone who has breathed the vapor is to remove him to fresh air. Medical attention should then be sought.

Self-polymerization not only results in loss of the acrylonitrile, but, because so much heat is produced during polymerization, may cause the container to explode. In transportation and storage, acrylonitrile is inhibited, i.e., a chemical is added to prevent unexpected polymerization. It should be noted that the vapor is free of inhibitor, so that polymerization in such places as pressure-vacuum valves is possible.

Today acrylonitrile is usually made from ammonia and propylene. In 1979 about 1.01 million tons were produced in the United States. It is shipped commercially by tank truck, tank car, barge, and ship and is regulated by the Coast Guard, the Department of Transportation, the Environmental Protection Agency, and the Inter-Governmental Maritime Consultative Organization. The Coast Guard classifies acrylonitrile as a cargo of particular hazard (COPH) and requires a Type II cargo containment system and closed gauging because of the chemical's hazards.

While the Coast Guard has not done any experimental studies on this material, extensive information is available in the technical literature. In the Netherlands, field tests including spills, vapor dispersion, and firefighting have been conducted.

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

Nautical Queries

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

DECK

(1) Which current would you encounter on a direct passage from London, England, to Capetown, South Africa?

- A. Falkland Current
- B. Brazil Current
- C. Norway Current
- D. Benguela Current

REFERENCE: Donns

- (2) A gnomonic projection is based on
- A. a plane tangent at one point.
- B. a cylinder tangent at the equator.
- C. a cone tangent at one parallel.
- D. an infinite series of cones tangent at selected parallels.

REFERENCE: Bowditch

(3) The aligning force on a magnetic compass will be considerably

- A. increased at the north magnetic pole.
- B. diminished at the higher magnetic latitudes.
- C. increased at the south magnetic pole.
- D. diminished at the lower magnetic latitudes.

REFERENCE: Duttons, 13th Ed.

(4) When the dew point of the outside air is greater than the dew point of the air in the cargo hold, you should

- A. energize the exhaust blowers.
- B. not ventilate the cargo holds.
- C. energize the intake blowers.
- D. ventilate the cargo holds.

REFERENCE: Saubier

(5) A vessel will have a greater degree of heel caused by rudder action when it

- A. is deeply loaded.
- B. has very little stability.
- C. is deeply loaded and down by the head.
- D. is deeply loaded and down by the stern.

REFERENCE: Modern Ships

ENGINEER

(1) In a turbocharged diesel engine, an increase in power output at constant engine speed results in

- A. higher exhaust temperature.
- B. increased turbocharger speed.
- C. higher air inlet pressure.
- D. all of the above.

REFERENCE: Stinson

(2) Exhaust valve openings in a diesel engine cylinder are made as large as practical to

- A. increase back pressure during the exhaust process.
- B. facilitate periodic replacement of the valves.
- C. reduce the pumping loss associated with scavenging.
- D. transfer the heat of combustion to the cooling water.

REFERENCE: Maleev

(3) In a 60 Hz, A.C. system, the current will pass through one complete cycle in

- A. 60 seconds.
- B. 6 seconds.
- C. 1 second.
- D. .016 second.

REFERENCE: Hubert

(4) When shipboard electrical distribution circuits are connected in parallel, additional parallel circuits will cause the total circuit resistance to

- A. increase, causing a drop in the line current.
- B. increase, causing a decrease in the line voltage.
- C. decrease, causing an increase in the line voltage.
- D. decrease, causing an increase in the line current.

REFERENCE: Hubert

(5) Allowances may be made for expansion and contraction in piping by the use of the expansion joints or

- A. unions.
- B. retractable flanges.
- C. union bulkhead fittings.
- D. bends or loops in the line.

REFERENCE: Principles of Naval Engineering

ANSWERS

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

MERCHANT MARINE SAFETY PUBLICATIONS

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

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

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

Coast Guard

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

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