Proceedings

of the Marine Safety Council

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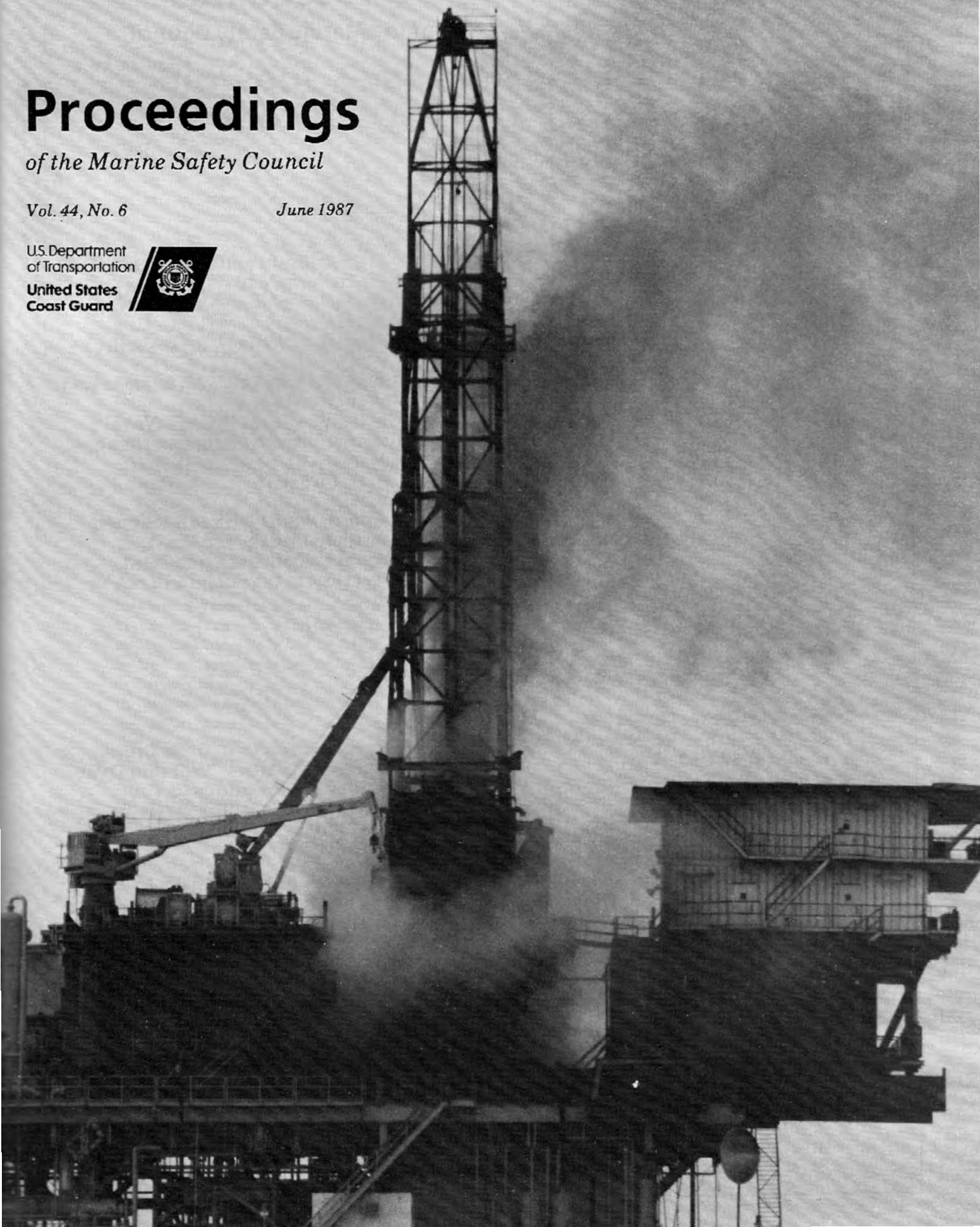

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It was a case of "everything going wrong" on the Sun Oil West Cameron 648 platform. The well kicked during workover operations, evacuated personnel had trouble operating their lifeboats, and then an accidental spark ignited gas on the abandoned rig. See story on page 131. (Official U.S. Coast Guard photo from the casualty file)

Blowout, Explosion and Fire Destroy the Sun Oil West Cameron 648

Thomas J. Pettin

At approximately 11:50 p.m. on December 3, 1985, a blowout, explosion, and fire destroyed a natural gas production platform known as **Sun Oil West Cameron 648** (OCS-G-4268). The platform was comprised of 10 wells and was located in the Gulf of Mexico at latitude 27-56-47 N and longitude 93-12-06 W. Efforts to fight the fire were hampered by the weather. At the time of the casualty, winds were blowing between 10 to 15 knots with waves reaching 5 to 7 feet. A Notice to Mariners was issued to advise of the possible explosive hazard in the vicinity of the blowout.

On the day of the casualty, workover operations were being conducted on one of the wells on the platform when the well "kicked" and subsequently blew out. The nature of the operation was the placement of a cement plug below perforated casing and subsequent flushing of the well to remove sand from the perforation and formation. The "kick" occurred when hydrostatic pressure exerted by a column of drilling fluid wasn't great enough to overcome the pressure exerted by the fluids in the formation being drilled, allowing water, gas, oil, and other formation fluids to enter the wellbore. As a result of the blowout, an uncontrollable flow of gas, oil, and other well fluids spewed from the well to the atmosphere. After the surface valves on the remaining wells were closed, platform personnel began to abandon the structure via two Whitaker evacuation capsules. Sun Oil land-based personnel were informed of events via the company telephone system and radioed two field vessels 25 miles away to proceed immediately to **Sun Oil West Cameron 648**.

Mr. Pettin is a Program Analyst in the Coast Guard's Safety Evaluation Branch, Marine Investigation Division, Office of Marine Safety, Security, and Environmental Protection.

The Sun Oil West Cameron 648, evacuated due to a blowout, burned out of control when an accidental spark ignited gas and condensate. *(Official Coast Guard photo)*

Personnel Rescued

The **Mary Lynn II** and **Gulf Fleet 39**, both under contract to Sun Oil, proceeded immediately to **West Cameron 648** to assist in rescuing platform personnel. Two hours later, the Mary Lynn II arrived on the scene and recovered all personnel. Rescued personnel were transferred to a nearby platform where a helicopter airlifted three men to a hospital for treatment of mild burns. The men were released a short time later. None of the men was incapacitated for more than 72 hours.

During the evacuation, an engine in one survival capsule failed to start after numerous attempts. No attempt was made to hand crank the engine as described in the capsule's operations manual. Personnel in this capsule drifted approximately 3 hours until recovered by the **Mary Lynn II**. The other capsule's engine started without incident; however, once in the water, the engine stalled when a 1-inch manila line became fouled in the propeller shaft.

Survivors in this capsule drifted for approximately 2 hours until being recovered by the same rescue vessel.

After all survivors were recovered, both survival capsules were towed to **Sun Oil West Cameron 648** and lifted onto the deck for inspection. The capsule engine that would not start had a probable air lock. After the engine's decompression switch was pulled and the engine had primed, it was hand-started without further adjustment. The other capsule used in the evacuation was started without a problem after the 1-inch manila line was removed from the capsule's propeller shaft.

Probable Cause of Incident

The Minerals Management Service investigated this casualty and has thus far concluded that the probable cause was an underbalanced fluid condition in the workstring during the setting of a cement plug. Fluid in the workstring may not have exerted enough hydrostatic pressure to counteract the downhole pressures. The underbalanced situation probably occurred when too light a fluid was pumped into the workstring to displace the cement plug or when the fluid pumped into the workstring overdisplaced the cement plug into the annulus of the well.

On December 7, 1985, the escaping mixture of gas and condensate ignited onboard the unmanned **Sun Oil West Cameron 648**. During the Coast Guard's investigation, it was determined that the probable chain of events occurred as follows: A traveling block fell onto the drill floor when a cable holding the block was severed by sand being jettisoned from the well during the blowout. A spark created by the metal-to-metal contact of falling block and the drill floor then ignited the escaping mixture of gas and condensate. There were no reports of any unsafe working conditions taking place onboard the platform the day the fire occurred, nor were there any complaints of any.

Between December 7 1985 and January 18, 1986, various firefighting and well-kill techniques were used to battle the blowout. Red

Up to 14 vessel s were on the scene at any one time to assist Red Adair Company in controlling the well and fire.
(Official U.S. Coast Guard photo)

Fifty-one days after the fire started, the hole casings were cemented to the surface level, and the well was declared dead. *(Official U.S. Coast Guard photo)*

Adair Company, a commercial oilfield firefighting concern, was contracted by Sun Oil Company and led the efforts to control the well and fire. Up to 14 vessels, including attending tugs, work boats, and crew boats, were on scene at any one time. On December 31 1985, the fire was extinguished due to partial bridging of the well. This is a natural occurrence resulting in the cave-in of the formation walls causing a reduction in flow and subsequent extinguishing of the flame. The fire remained out throughout the following 23 days of well-kill efforts. On January 23, 1986, all hole casings were cemented to the surface level, and the well was classified as officially "dead."

Stay Current With the Regulations

How often do we really take the time to review the regulations governing fixed platforms? Our lives can depend on how well we follow them. Was there an apparent lack of training on the part of personnel assigned to one survival capsule in that they failed to located their capsule's operating manual that would have instructed them on how to start their troubled engine? 33 CFR 146.125 states that an emergency drill shall be conducted at least once each month by the person in charge of the manned facility and that the drill shall be conducted as if an actual emergency existed. The person conducting the emergency drill should instruct personnel in a manner that will ensure that all persons are familiar with their duties, stations, and responsibilities, and such instruction should include the location of survival capsule operating manuals.

Fortunately in this case, there was no loss of life, but there was the everpresent danger of the ignition of flammable well fluids floating on the surface of the water. Were personnel assigned to **Sun Oil West Cameron 648** unaware of 33 CFR 146.120 that states the owner, the owner's agent, or the person in charge of a manned facility shall assign a person to each life float, lifeboat, liferaft or survival capsule who shall then be responsible for launching it in an emergency? This free-floating survival capsule could have been swallowed up in flames. Lives could have been endangered had surface well fluids ignited because no one knew how to hand-crank the engine (as described in the capsule's operations manual). Emphasis needs to be placed on training people to know what is in the operating manual. The time of emergency is not the time to be reading up on evacuation regulations and procedures. Personnel should be familiar with equipment. Working in the offshore environment is often difficult. In many cases personnel must ply their trade under adverse conditions. Staying one step ahead of potential danger makes good sense and could save your life.

This article was based on the Marine Casualty Report filed by the Investigating Officer, U.S. Coast Guard, Marine Safety Office, Port Arthur, Texas, report number MC86000293, dated July 10, 1986.

The 1986 Load Line Law: An Explanation of Its Major Provisions

W. A. Cleary, Jr.

A new load line law has supplanted the two laws which had previously existed in the U.S. Code. The load line laws of the United States have always implemented U.S. responsibility as a party to the International Convention on Load Lines in force. Even the domestic load line law and its regulations were originally based on reasonable comparability with the international convention. The original international voyage act was superseded in 1973 by a new act which implemented the International Convention on Load Lines (1966), while the Coastwise Act had been modified but never fully updated in its 51-year history.

Major Provisions

The new law simplifies the administration of load lines by combining the legal basis for all load lines into one law; simplifies the application of load lines by using only the 79-foot-length limit already used in the international convention; permits the Secretary of Transportation to use uniform exemption authority on domestic as well as foreign voyages; updates the monetary penalties which had not been changed since 1935; and includes formal survey guidelines. The new law contains provisions that assure all parties concerned with load lines that the existing regulations and certificates remain in effect until superseded or updated. The Coast Guard has begun a regulations update for the entire load line subchapter of the Code of Federal Regulations (46 CFR Subchapter E).

While the new law permits changes to the load line regulations, the basic requirements for load line assignment, survey, and certification have not been changed, nor have any of the technical rules for calculation of freeboards. Further, the Coast Guard does not plan immediate changes to the technical regulations under the current regulatory update except for an upgrading of the limited domestic voyage regulations for greater uniformity.

Mr. Cleary is Chief of the Naval Architecture Branch, Marine Technical and Hazardous Materials Division, Office of Marine Safety, Security, and Environmental Protection, U.S. Coast Guard.

Major Changes

Several important changes have been included in the new law:

Size

The new law applies to ships 79 feet or more in length for both international and domestic voyages, a change from 150 gross tons for domestic voyages. This confusing double standard had been in effect since 1968 when the International Convention on Load Lines (1966) changed from 150 gross tons to 79 feet and the Coastwise Act remained at 150 gross tons.

Boundary Lines and Inland Waters

Load line safety regulations may now be applied to any vessel of 79 feet (unless specifically exempted) which crosses the regulatory Boundary Lines. The existing policy of no load lines on purely inland vessels as long as they remain inland has been retained. The new law applies to any seagoing vessel within the Boundary Lines on U.S. waters and any U.S. vessel anywhere in the world. Although the load line regulation system is designed to provide safety primarily on the high seas, it must be enforced in harbors, just prior to going to sea or having just returned from the high seas.

It is also necessary to enforce some provisions of the law, such as the stability requirements, even while a seagoing ship is far inland. The law provides protection for our own harbors through the enforcement of the stability

provisions while a ship is in harbor, thereby helping to prevent pollution of harbors or other dangers to U.S. citizens or their property. Two examples of this, both involving foreign-flag ships, are the capsizing of a small freighter in the Miami River and the capsizing of a larger heavy lift ship in the Mississippi River. Both accidents occurred because the stability information was inadequate or ignored.

Application

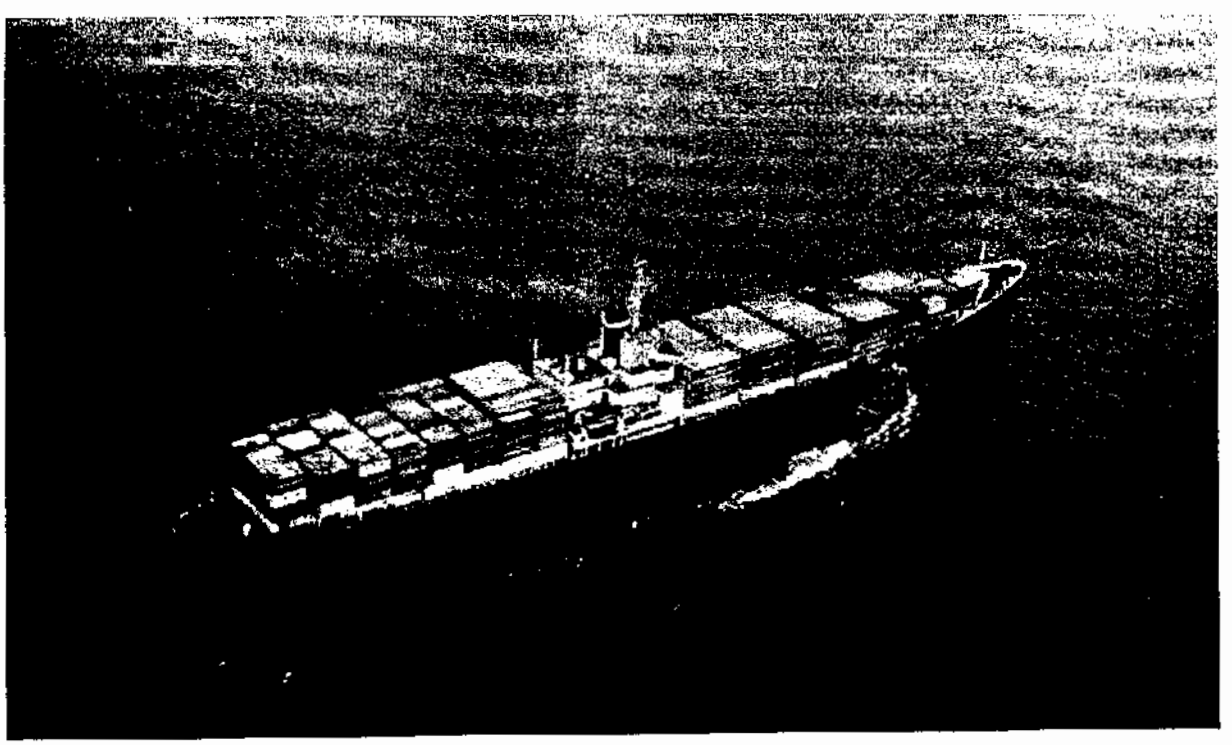
To control oceangoing ships in harbors or well inland in our river system, and to retain the policy of no load lines on ships which always stay inside the boundary lines, the Application and Exemption section of the law was purposely arranged so as to place all vessels under the law and then specifically remove those exempted. The Application portion of this section had three principal points:

- It applies to oceangoing U.S.-flag vessels 79 feet in length or longer anywhere in the world.
- It applies to any vessel 79 feet in length or longer in waters under the jurisdiction of the United States.
- It applies to vessels 79 feet in length or longer owned by U.S. citizens anywhere in the world.

The first two actions above are obvious, but (c) may need explaining. There are a few vessels which are U.S.-owned but not yet registered as U.S. vessels. In past years this usually happened when a U.S. vessel was built in a foreign yard and put into service such that it did not call at a U.S. port for a considerable period. The International Convention on Load Lines (1966) also considered this situation when it was made applicable to both registered and unregistered ships of member nations.

Trust Territories, Islands, and New States

As long as the United States is responsible for trust territories, the new law will cover the Trust Territories of the Pacific as well as the Commonwealth of Puerto Rico, the Virgin



The new loadline law applies to ships 79 feet or more in length for both international and domestic voyages, a change from 150 gross tons for domestic voyages. Both the cargo vessel and the tug pictured above are subject to the new law.

Islands, Samoa, and the other islands for which we are responsible. These voyages will continue to be treated as international voyages as required by the current International Convention on Load Lines, 1966. Since Alaska and Hawaii became states, it has been possible to consider a voyage between the "lower 48" states and Alaska or Hawaii as a non-international voyage. However, the fact that voyages to these states are on the high seas, exposed to the full risks associated with voyaging on the oceans, prompted the Coast Guard to retain the full safety requirements in the Code of Federal Regulations for vessels making these voyages.

Exemptions

There are more exempted categories in the new law than in the previous laws, but these also assist in being more specific as to application. There are twelve specific exemptions. All but three of these were used in the previous laws and the international convention. The older exemptions now contained in the new law apply to vessels of war, recreational vessels when they are not engaged in commerce, fishing vessels, certain existing fish processing and fish tender vessels which had been specially exempted from load lines in the Coastwise law, all vessels which remain inside of the boundary lines except those voyaging on the Great Lakes which have been load lined waters since 1935 and will remain so, vessels less than 79 feet in length, and vessels excluded by international agreement. The new law includes an exemption for vessels of less than 150 gross tons on domestic voyages built before January 1, 1986.

The three new exemptions are

- public vessels of the United States on domestic voyages.
- small passenger vessels on domestic voyages.
- vessels of the working fleet of the Panama Canal not on a foreign voyage.

These exemptions were suggested during the review of this law by other government agencies and by the Congress. The reasons for each are respectively:

(1) To facilitate movement of government-owned vessels. Public vessels of the United States on domestic voyages have always had the option of not meeting governmental inspection laws when not on international voyages making them subject to international conventions.

(2) Small passenger vessels on domestic voyages have been virtually exempt from load line regulations because they are, by definition, less than 100 gross tons, and until now the domestic law used the 150-gross-ton lower limit. Their specific exemption maintains the status quo. Passenger vessels 79 feet or more in length making international voyages have been required to meet the International Convention on Load Lines since 1968.

(3) The Panama Canal Commission regulates its own working fleet closely on all safety areas.

Special Exemptions

The new law provides the Secretary of Transportation with full exemption authority. The old 1935 Coastwise Act had been challenged at all levels, including government legal sources, as not providing a clear exemption authority for domestic voyages. In the past, this has hampered the flexibility of the Coast Guard in applying load line regulations to partially protected or unique domestic voyages to the degree deemed necessary for safety.

There is a very recent example of the usefulness of the new exemption authority. In 1984, although the Coast Guard agreed that a partial exemption was proper, it was necessary for the inland barge industry to petition the Congress for a relatively minor change to the 1935 Coastwise Act which would permit special operating conditions for the use of river barges on a small section of Lake Michigan provided that they operated in fair weather only and met minimum scantlings of the American Bureau of Shipping.

In time, other "good cause" exemption authority reasons may develop for inclusion in regulations such as geographic "no load line" areas, special operating conditions, special types of ships, and research functions. This exemption authority may also be used to help modernize the regulations in several other ways. It might be used to test innovations in ship design, utilizing special operating conditions for

equivalent safety where this is acceptable to the Coast Guard. It may also assist in developing load line requirements for unique vessels (not involving research in ship design) such as hopper dredges, beach reclamation equipment, etc. Exemptions for vessels on international voyages will continue to be limited to those granted by Article 6 of the International Convention on Load Lines which permits only short voyages under bilateral agreements, research in ship design exemptions, and delivery voyage exemptions. Thus, the new uniform exemption authority for domestic voyages is one of the most significant changes in the new load line act.

Before leaving the discussion of exemptions, we should note that the new law permits the adoption of regulations to exempt "for good cause." Two thoughts are emphasized in this area (regulations and good cause). Regulations are specified in order to help assure that all special exemptions will be the subject of a public rulemaking process. This will help maintain a similar approach for load lines in all U.S. waters. Second, "for good cause" requires Coast Guard to satisfy itself that a compelling need exists. The Coast Guard's intention is to utilize the Notice of Proposed Rulemaking in the document regulation project (CGD 86-013) to develop formal regulatory guidelines for exemptions which can be easily understood and uniformly applied.

Surveys

Throughout the 56-year existence of load line regulations, there have been occasional discussions on exactly what is required to satisfy the law versus the regulations. The new law includes the generic safety functions which have always been used for survey of all ships governed by load line regulations, whether they are on international or domestic voyages.

The Coast Guard has always been satisfied that the vessel must first meet the survey requirements proving that it had the minimum level of safety afforded by the technical requirements. Having satisfied the requirements, the vessel was then eligible for the full endorsed load line certificate. However, from time to time the argument was advanced that only a certificate was required by the law. The new law helps to solve this sort of misinterpretation by requiring satisfactory surveys before issuing the certificate.

There are five functional area safety requirements that can be identified in existing regulations and in the international convention. These are the strength of the hull; accurate stability for each voyage intended, which includes an intact stability reserve for survival in storm seas; weathertight/watertight integrity of the hull; and finally, the items for the safety of personnel on deck, such as the rails and bulwarks. The reasons for including in the new law the broad rationale of the five categories of load line safety was to emphasize that historically, load line safety covers more than the mark and certificate and to provide full authority for load line surveys. It could be said that placing these functional areas into the new law may limit the flexibility of the Secretary by requiring some review of each one of these safety areas by Coast Guard before a load line certificate is issued. However, the Coast Guard thinks that it is quite proper to list the safety functions which the Secretary is responsible for examining. Thus, all parties to load line will have a better idea of the complete load line responsibility which we share.

Approved Assigning Authorities

Traditionally, the actual work of review, survey, and calculation of freeboards has been delegated to Approved Assigning Authorities, which are the following major classification societies: American Bureau of Shipping, Lloyds Register of Shipping, Germanischer Lloyd, Det Norske Veritas and Bureau Veritas, and a recent addition, Registro Italiano Navale. The Coast Guard intends to continue to use these major classification societies as Approved Assigning Authorities. Coast Guard involvement in load line administration will continue to be one of general oversight of their activities and interpretation of the regulations and convention as necessary, as well as international discussions at the International Maritime Organization on any interpretations or changes to the International Convention on Load Lines that may be desired.

Submersible Vessels

The new law also provides for the future regarding submersible vessels of 79 feet or more

in length. Under the convention and the older laws, it was necessary to require load lines on such vessels, but it was a violation of our law and the convention to submerge the load line mark. Submersible vessels on U.S. domestic voyages can now be subjected to special rules for submarines and can receive a Load Line Certificate. Submersible vessels on international voyages will continue to be issued special International Exemption Certificates until a similar change to the convention is agreed.

Penalties

Finally, although the five categories of penalties are still the same, the monetary penalties have not been upgraded since they were first adopted over 50 years ago. The new law upgrades the monetary penalties in each category to help bring the law into the 1980s. The criminal penalties for the last two categories have not been changed from the 1- and 2-year maximums, respectively, in the previous laws.

The five categories are as follows:

- Daily penalty for any violation increased from $1,000 to $5,000.
- Overloading penalty per occurrence changed from $1,000 to $10,000. Amount of overload penalty changed from $500 per inch of overload to a "benefit of overloading" concept.
- Logbook violation increased from $500 to $5,000.
- Violation of detention order increased from $1,000 to $10,000.
- Alteration of marks increased from $2,000 to $10,000.

The overloading penalty needed significant change after 50 years. It had the potential to be an ineffective penalty for extremely large vessels since, with the increase in size of ships in the past 5 decades, it became possible to pay the fine and still make a profit from overloading. Ships usually obtain revenue by the number of tons or cargo carried (including extra tons of overload cargo). Thus the economic benefit that is to be gained from overloading is quite a bit more for the very large vessel than for the small vessel. Under the new law, when overloading is proven, the person or persons held responsible for the overloading will be fined $10,000 per violation plus up to twice the economic benefit of the overloading. In addition to increasing the "per violation" monetary penalty for overloading, it was recognized that the former fine of $500 per inch of overload of draft was an unbalanced penalty when the great difference in size of vessels is taken into account. Small vessels may carry as little as 20 tons for each inch of submersion, while 200,000 dwt bulk carrying ships may transport an additional several hundred tons with each inch of draft.

Accordingly, this new law changes the formula or the overloading penalty and bases it on the "economic benefits gained by the overloading." The law uses an upward limit of $50 per ton as an overload freight rate. This figure does not represent the value of the goods, but of the freight rate for carrying cargo. At $50 per ton, it is well above most current rates in order to make the penalty meaningful and to allow for inflation in the future. The penalty does not have to be $50 per ton of overload. Once an overload is determined to exist, if the owner chooses to present documentary evidence to prove that the economic benefit from the overload was a freight rate of something less than $50 per ton, the law permits the penalty to be set using a lesser freight rate. The economic benefit will be determined by multiplying the tons per inch immersion at the assigned summer draft by the number of inches of overload which will then be assessed at $50 per ton unless the owner presents evidence as to the actual freight rate. Although some cargoes have had freight rates up to $20 per ton, most are reported to be less.

Summary

It is hoped that the updated uniform load line law will permit better understanding of the use of load line safety evaluations, more uniform application and uniform exemption procedures, effective penalties when these are necessary, and flexibility for the future in fitting the law to the newer types and sizes of vessels trading under the U.S. flag or in U.S. waters.

Coast Guard District Offices Realigned

Secretary of Transportation Elizabeth Hanford Dole recently announced a Coast Guard realignment that will result in the assignment of more personnel to its operational units.

The Secretary said the reorganization would be accomplished by reallocating more than 500 shore personnel currently working in internal support functions, but that no Coast Guard services would be cut back. "This action will permit us to use uniformed personnel in positions in which they will be most effective. The war on drug smugglers, search and rescue missions, and treaty enforcement will all be enchanced by this action," she said.

To assign more personnel to operational positions, the Coast Guard plans to restructure parts of its maintenance and logistics organization. Maintenance and Logistics Commands (MLCs) will be established in New York City and Alameda, California, and the Third and Twelfth Coast Guard District offices now located in those cities will be closed. The MLCs will be commanded by a Rear Admiral who will report directly to the Area Commander (Atlantic or Pacific).

Until now, maintenance and support have been provided to operating units by the Coast Guard Districts through their engineering staffs. Now the MLCs, along with small maintenance teams assigned near large concentrations of units, will fill this role.

This realignment will help the Coast Guard meet its increasing duties in drug interdiction and military readiness without having to cut out other services to the American public and without having to weaken support quality. At the same time, there will be no relocation of operating units.

The realignment stems from an internal study initiated by Admiral Paul A. Yost shortly after taking over as Commandant of the Coast Guard in May 1986, to see where the Guard could "grow from within" to meet its missions. Completion of the realignment is planned for the end of the year.

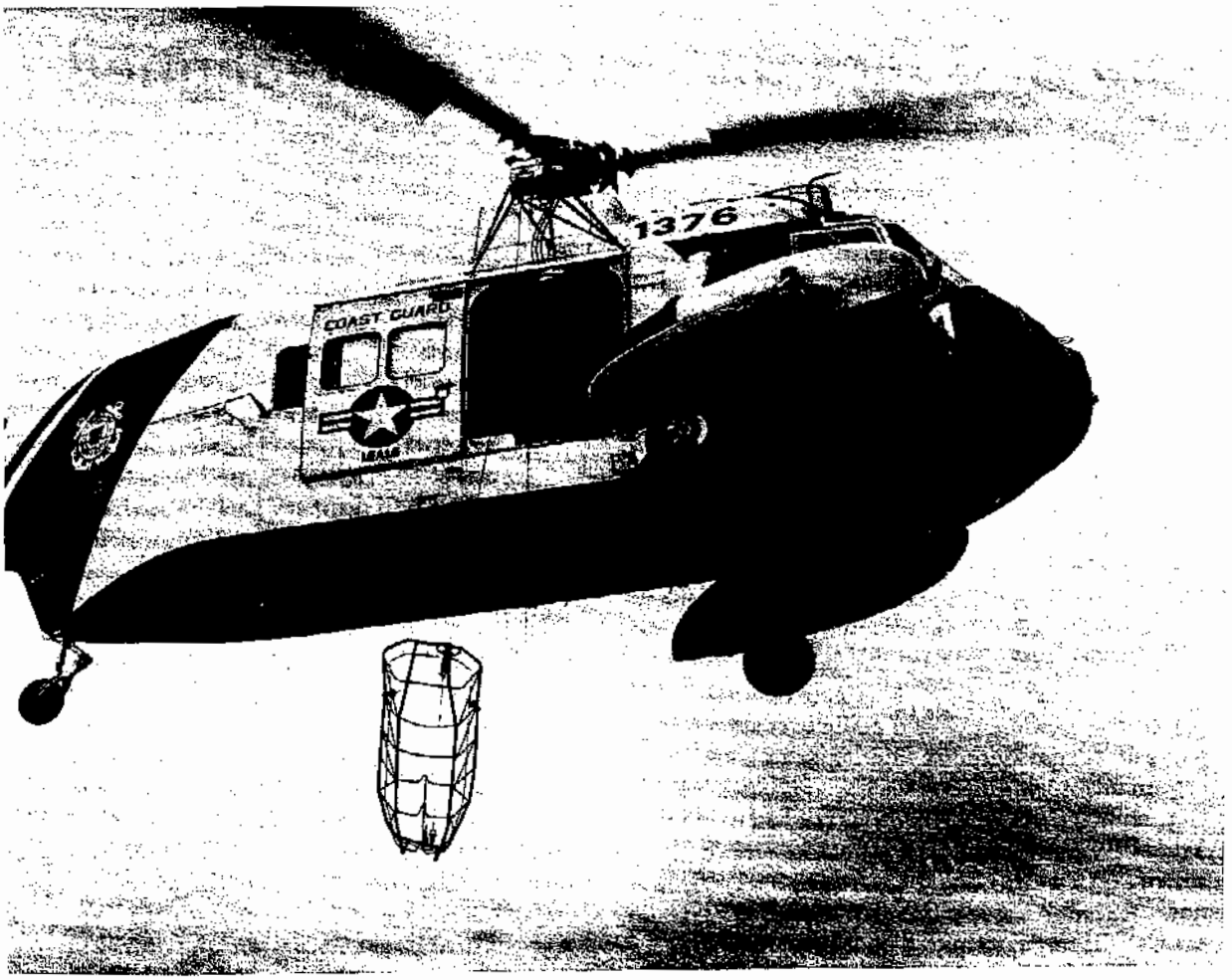
Changes in each Coast Guard District are noted as follows:

- The First Coast Guard District, which covers New England and is headquartered in Boston, will be extended beyond Rhode Island to the Toms River in New Jersey and will include New York City. Twenty-seven military and 38 civilian jobs eventually will be relocated out of Boston due to the realignment. In the future, additional military positions will be added to crew and support three new 270-foot cutters to be homeported in Boston and New Bedford.

- Coast Guard operations throughout the Second District, which covers 21 middle-of-the-country states, will not change, and District headquarters will remain in St. Louis. The realignment revises internal support, but not service, to the Midwest. Forty-seven military and 21 civilian jobs will be relocated out of St. Louis.

- Third Coast Guard District offices on Governors Island in New York Harbor will be dissolved. Governors Island will become the home of the Atlantic Maintenance and Logistics Command, one of the two new regional centers (the other will be in Alameda, California). After the command changes are in effect, the net result will be an increase of two military and 94 civilian jobs in the city. The Third District's jurisdiction -- Connecticut, Vermont, New Jersey, Delaware, and parts of New York and Pennsylvania -- will be divided between the First District in Boston and the Fifth District in Portsmouth, Virginia. Coast Guard units in Connecticut, New York, and along the east coast of New Jersey down to Toms River will report to the First District. Those south of Toms River will report to the Fifth District.

- The Fifth District, which covers Maryland, Virginia, and North Carolina, will now include Delaware and parts of



More than 500 shore personnel currently working in internal Coast Guard support functions will be reallocated, but no Coast Guard services will be eliminated or cut back. *(Official U.S. Coast Guard photo by PA2 Boyd)*

New Jersey and Pennsylvania, formerly of the Third District. District headquarters will remain in Portsmouth, Virginia. Thirty-six military and 22 civilian positions eventually will be relocated from the Portsmouth, Norfolk, and Tidewater areas.

- The Seventh District headquarters staff in Miami, Florida will be smaller, but the number of cutters and aircraft assigned and operating in the district will increase. The Seventh District covers South Carolina, Georgia, most of Florida, and the Caribbean. Sixty-three military and 48 civilian positions will be relocated out of Miami as a result of realignment. Future planned additions include a new C-130 long-range aircraft assigned to Clearwater, Florida; three new 110-foot patrol boats operating from Puerto Rico; and a fast boat squadron and sea-land aerostats.

- The Eighth District covers Louisiana, Texas, New Mexico, and parts of Alabama, Mississippi, Florida, and Georgia. District headquarters will remain in New Orleans. Fifty-nine military and 59 civilian positions will be relocated from the Eighth District headquarters.

- The Ninth District covers Michigan and parts of Ohio, Illinois, Indiana, Minnesota, Wisconsin, New York, and Pennsylvania. District headquarters will remain in Cleveland. Fifty-eight

military and 38 civilian positions will be relocated from the Ninth District headquarters.

- The territory of the new Eleventh Coast Guard District, headquartered in Long Beach, will include all of California, Nevada, Utah, and Arizona. Twenty-eight civilian positions will be relocated out of Long Beach as a result of realignment. In the future, additional military positions will be added to the Long Beach area to crew and support a new 270-foot medium-endurance cutter.

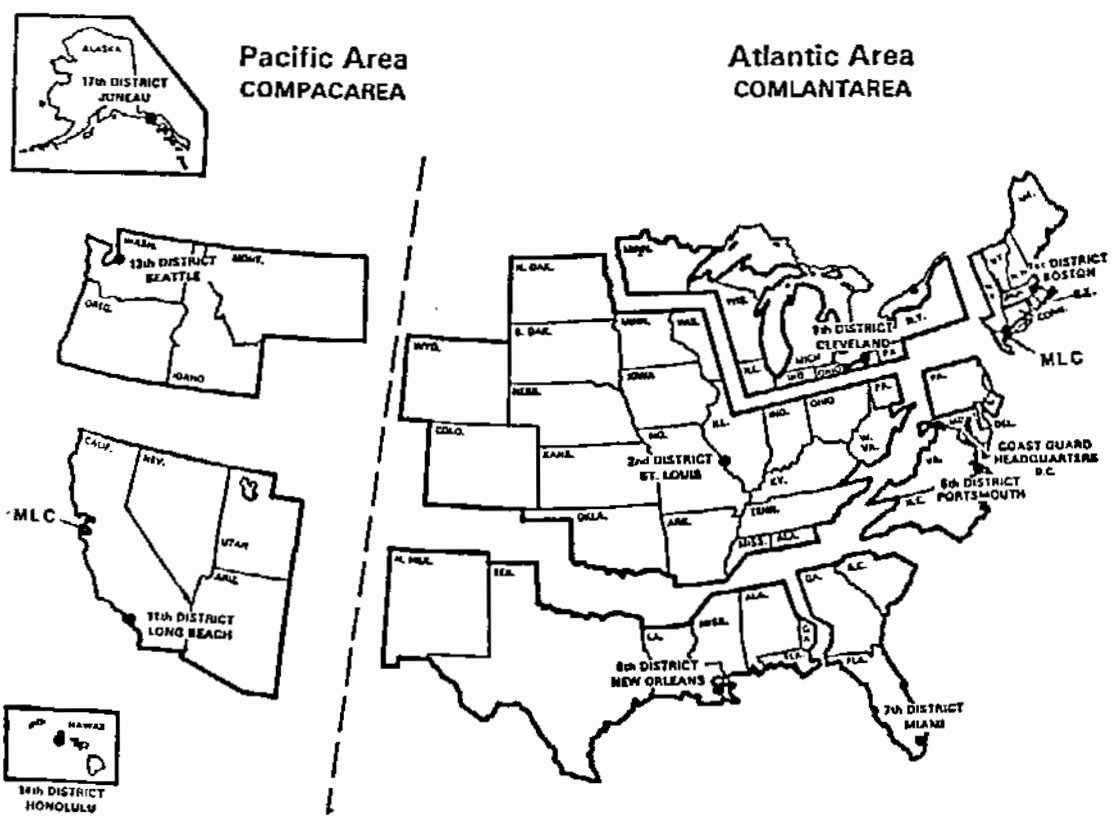
- The Twelfth Coast Guard District offices in Alameda, California, will be dissolved. The Twelfth District's jurisdiction -- northern California and parts of Nevada and Utah -- will be taken over by the Eleventh District in Long Beach. Alameda will become the home of the Pacific Maintenance and Logistics Command, one of the two new regional centers (the other is located in New York City). After all command changes are made, the net result will be a gain of 39 military and 105 civilian positions in the San Francisco area.

- The Thirteenth District covers Washington, Oregon, Montana, and Idaho, with headquarters in Seattle. Sixty-five military and 40 civilian positions will be relocated from Seattle.

- The Fourteenth District covers the Hawaiian Islands and Pacific Ocean Territories, with headquarters in Honolulu. Forty-seven military and 23 civilian positions will be relocated from Honolulu.

- The Coast Guard will put more people on patrol in the Seventeenth District. Fifty-one military and 27 civilian positions will be relocated from Juneau, the Seventeenth District headquarters, but by 1990, it is projected that additional aviation units will be operating from Alaska.

NEW DISTRICT ALIGNMENT



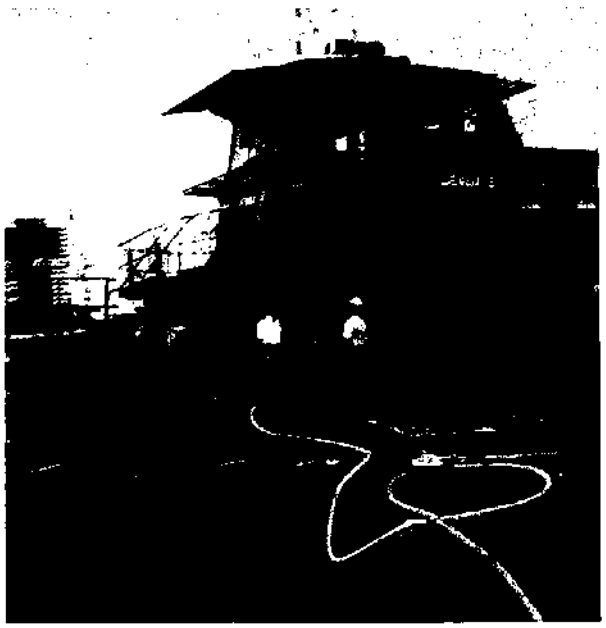
Lessons from Casualties

Dead Drunk

CWO3 Alvin M. Shepherd

At 11:58 a.m. on August 16, 1986, the pleasure craft **Georgie Porgie** saw a fire on the **M/V Jenna B**, which was moored near the Minute Man fuel pier on the southern branch of the Elizabeth River in Norfolk, Virginia. The fire produced a heavy, gray smoke that poured from the superstructure; the fire was confined mostly to the main deck. The **Georgie Porgie** reported the fire to Coast Guard Station Portsmouth on VHF-FM channel 22. The Norfolk Fire Department was called at 11:59. At 12:12 p.m., a boat from Station Portsmouth arrived on scene and began to fight the fire and direct the efforts of two crewmen from a Lonestar Cement Corporation tug who secured the generator on the **M/V Jenna B**. A Coast Guardsman boarded the **M/V Jenna B** and fought the fire with a 1-1/2" hose. At 12:18, and just after two firetrucks from the Norfolk Fire Department arrived on scene, the fire was out; it subsequently reflashed several times. A Norfolk fireman found the body of the chief engineer

At the time he wrote this article, CWO3 Shepherd was an Investigating Officer at the Coast Guard Marine Safety Office, Hampton Roads, Virginia.



The tug Jenna B, port side. *(Photo courtesy of the author)*

Note heat damage to the television in the crew's lounge. *(Photo courtesy of the author)*

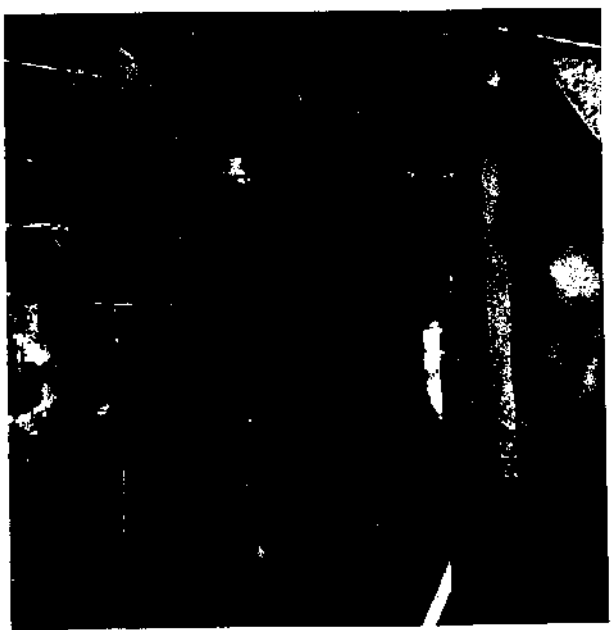
next to a chair in the crew's lounge. A fire investigator also found a nearly empty bottle of whiskey nearby.

The Investigation

The **M/V Jenna B** is an uninspected towing vessel built in 1945, is 137 feet in length and of 320 gross and 56 net tons. It has 1,800 horsepower.

The chief engineer was the only person onboard the vessel at the time of the fire. he was assigned to the vessel for the weekend for engineering work and to act as security for two tugs and an empty tank barge. He had been onboard the **M/V Jenna B** for 2 days. The chief engineer had been employed in the towing vessel industry for approximately 25 years and was 57 years old.

The fire started in the chief engineer's quarters in his bunk and was started by smoking materials. At the time of the fire, the chief engineer was in the crew's lounge which was approximately 30 feet forward of his quarters. He was found dead on the deck next to a chair in the lounge; he had apparently been sleeping in the chair. There were burns to the body, but they were not severe enough to cause death. The cause of death was smoke inhalation. The



Fire damage to the chief engineer's quarters. *(Photo courtesy of the author)*

carbon monoxide concentration in his blood was in excess of 60 percent.

The owner stated that the chief engineer may have been drinking even though drinking alcohol or the possession of alcohol was not permitted on the company's vessels. Norfolk Fire Department investigators found a fifth of whiskey in the chief engineer's quarters with all

but an inch or so gone. His blood alcohol concentration (BAC) was .26 percent.

The casualty could have been a lot worse since the tug was tied up at a facility that is next to a fuel pier and alongside several other tugs.

Conclusions

Had the chief engineer not been intoxicated, he probably would have awakened in time to escape, extinguish the fire, or better yet, he would not have started the fire through careless smoking.

On May 23, 1986, the Coast Guard published a Notice of Proposed Rulemaking (NPRM) at 51 Federal Register 18902 which proposed regulations designed to monitor, control, and reduce alcohol and drug use in both recreational and commercial vessel operations. The NPRM :

(1) proposes as a federal standard for intoxication, a BAC level or .10 percent for operators of vessels not subject to Coast Guard manning requirements, and a BAC level of .04 percent for crew members of vessels subject to manning requirements.

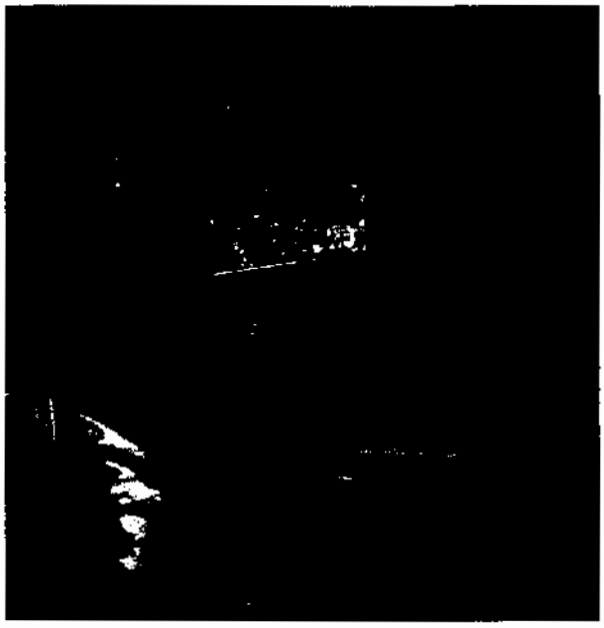
(2) proposes a further behavioral standard for intoxication due to drug and/or alcohol use, which is independent of the BAC standard, and which is based on an individual's manner, disposition, speech, muscular movement, or general appearance.

(3) amends USCG marine casualty reporting regulations to require information on whether drug and/or alcohol use contributed to a casualty.

(4) provides for the optional chemical testing of persons suspected of being intoxicated by the master or person in charge of a vessel, Coast Guard law enforcement or investigating officer, or any law enforcement officer authorized to obtain a test under state or local law.

(5) proposes, for inspected vessels, to prohibit crew members from using alcohol within 4 hours of assuming watch, from being intoxicated at any time while the vessel; is operating, and from consuming any intoxicants while on watch except prescription medication.

(6) proposes, for vessels subject to manning requirements, to prohibit a crew member, pilot, or watchstander not a regular member of the crew from being intoxicated while the vessel is operating, and to prohibit



Crew's lounge where the chief engineer was sleeping. *(U.S. Coast Guard photo courtesy of the author)*

responsible persons from allowing intoxicated individuals to perform duties.

(7) encourages alcohol and/or drug rehabilitation by providing for voluntary completion of an accepted drug or alcohol rehabilitation program as a means of avoiding suspension and revocation action; or, in the event suspension and revocation action has already occurred, as a means of applying for early issuance of a new license, certificate of registry, or merchant mariner's document.

These proposed regulations, if adopted, would implement recent legislation which provides stiff penalties for intoxicated vessel operators:

An individual who is intoxicated when operating a vessel, as determined under standards prescribed by the Secretary by regulation, shall be --

(1) Liable to the United States Government for a civil penalty of not more than $1,000; or

(2) Fined not more than $5,000, imprisoned for not more than 1 year, or both.

Owners who suspect crewmen on their vessels of having alcohol problems should make all efforts to take corrective action to prevent this type of casualty. It is time for all of us to make a more conscious effort regarding the danger of alcohol abuse in the marine industry.

Lessons from Casualties

Working Over the Side May Be Hazardous to Your Health

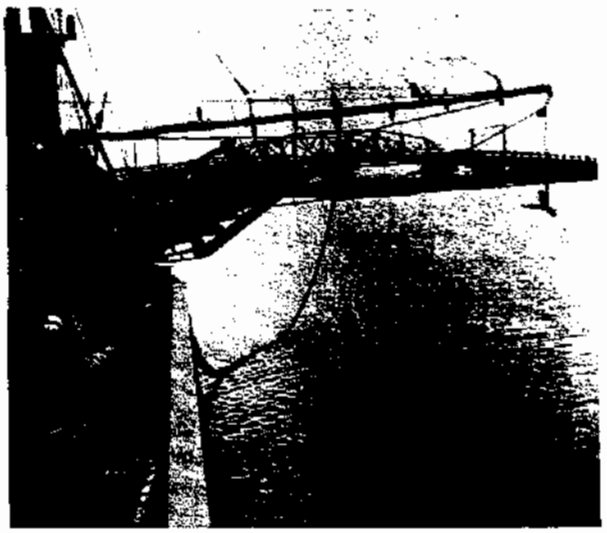
LCDR Michael L. Dobravec

Case 1

Early in the morning of June 17, the crew of a fishing vessel were readying gear for a surf clam trip. The clam dredges had already been set outboard over the water when one of the crew noticed a spray nozzle problem on the starboard dredge. To save time, one of the deckhands decided to adjust the nozzles without bringing the dredge back on deck, and he climbed onto the dredge without a lifejacket. Just as his partner, another seaman, was about to join him, the deckhand lost his footing.

As the deckhand fell, he struck his head sharply against the dredge's steel frame. His body slipped through the dredge's latticework and landed in the water. The seamen yelled in the direction of the pilothouse and then sprinted for the vessel's stern, grabbing a lifering. He tossed the ring into the water, but the deckhand was unconscious.

Up in the pilothouse, the skipper heard the yelling and saw the deckhand on the starboard side. He brought the engines to stop so that the deckhand wouldn't be pulled into the propeller. The skipper gave the helm right full rudder, waited for the man to pass clear of his stern, then came ahead full throttle, which kicked his stern away from the deckhand. After executing a Williamson turn and coming back down his original track, the skipper noted the deckhand was still floating on the water. The vessel had gotten within a boat length of the deckhand when a wave broke over his head, and he disappeared.



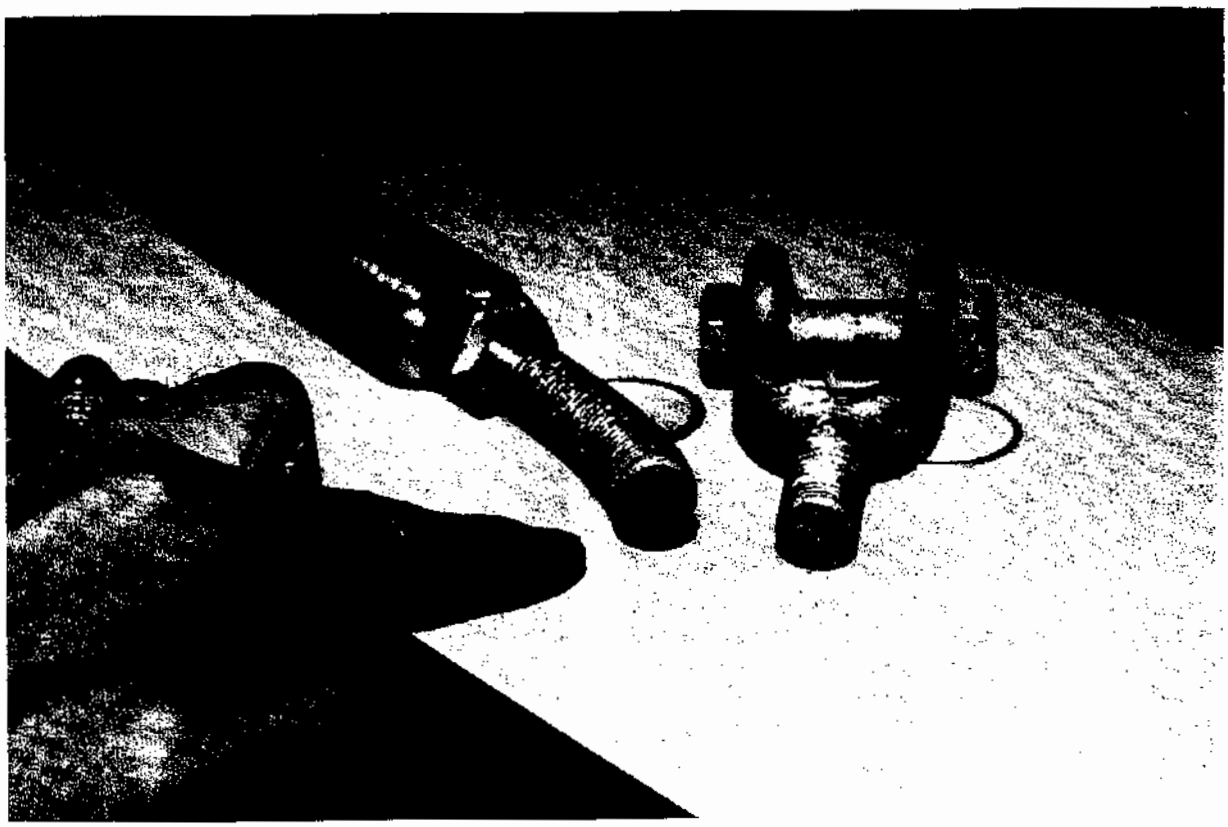
Starboard clam dredge on the fishing vessel from Case 1, looking forward. *(U.S. Coast Guard photo by LTJG R. L. Terry)*

The fishing vessel crew searched for over 6 hours in the area around the lifering. They were joined by other fishing vessels in the area, as well as Coast Guard vessels and aircraft, but the deckhand's body could not be located. Several weeks later, his body was recovered.

Case 2

The crew of a bulk carrier conducted an abandon-ship drill with the starboard lifeboat. The boat was lowered to the water, where it was to be released from its falls and rowed free of the ship. However, the releasing gear had been affected by corrosion, salt, and dirt, and the crew had great difficulty getting it to open. The Coast Guard marine inspector aboard for the mid-period examination told the chief mate that the

LCDR Dobravec is currently a marine inspector in the Merchant Vessel Inspection Department, U.S. Coast Guard Marine Safety Office, Hampton Roads, Virginia.



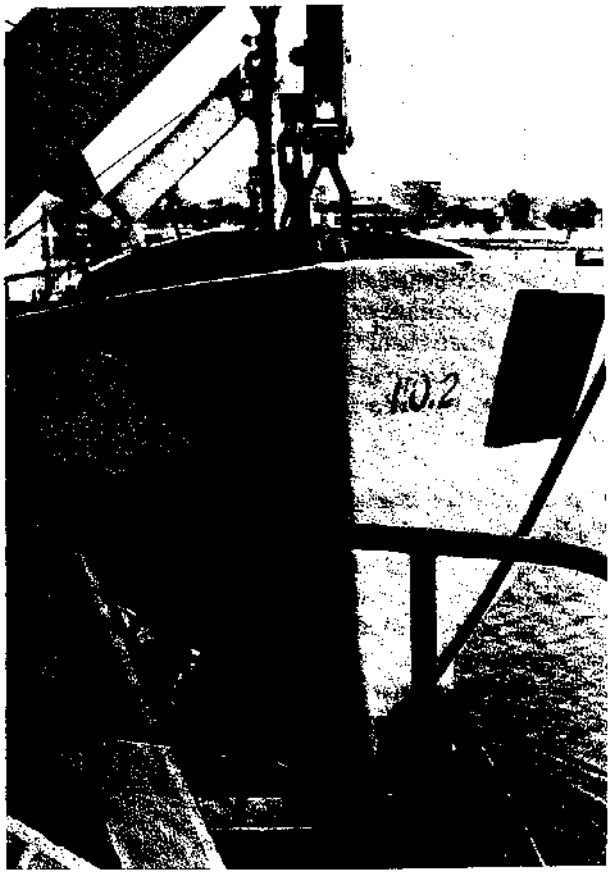
Fractured turnbuckle from the lifeboat in Case 2. *(U.S. Coast Guard photo by the author)*

releasing gear would have to be freed up and later demonstrated to his satisfaction. The inspector then went below.

The boat was raised up to the davits and stowed securely in its gripes. Under supervision of the chief mate, the bosun and three deckhands climbed into the lifeboat. The bosun assigned one deckhand, an able seaman, to work the releasing gear lever back and forth from its closed to opened position. The gripes were brand new and had been installed on the previous day, and the boat didn't move as the deckhand worked the gear. The other two deckhands were put to work greasing the fore and aft gear joints. After completing these tasks, the work party went to the port lifeboat and repeated the same procedures.

After lunch, the bosun instructed the able seaman to stand by the starboard lifeboat and prepare to demonstrate the releasing gear for the marine inspector. Shortly after 1:00 p.m., the inspector and port engineer arrived, and the seaman asked the inspector if he wanted to see the releasing gear demonstrated. The inspector agreed and accompanied the seaman to the embarkation catwalk next to the boat, expecting to see the rest of the boat detail arriving momentarily. When the seaman climbed into the boat, the inspector thought the seaman was preparing the boat for lowering. Instead, the seaman threw the handle to the open position, just as he had done several times earlier on both boats.

There was a loud bang. The turnbuckle on the forward gripe, progressively weakened by the earlier releases of the falls, finally suffered material failure and parted when the boat's entire weight fell into the gripes. The lifeboat tipped outboard, and the bow keel fell off the davit block. The bow slid down the davit, allowing the stern to slip out of the after gripe. The lifeboat fell 30 or 40 feet toward the water, throwing the seaman clear of the vessel on the way down. He was pulled out of the water and taken to a hospital, where he was treated for broken ribs, severe bruising, and a wrenched back. Damage to the boat was estimated at $10,000.



Port lifeboat stowed in its davits on the vessel in Case 2. The gripes wrap around the boat to assist the falls in holding the boat against the davits. *(U.S. Coast Guard photo courtesy of the author)*

These are only two examples of the dangers involved in working over the side of a vessel. Over the past 5 years, the Coast Guard has received reports of 564 casualties as a result of falling over the side. Of these 564 incidents, 463 were deaths.

The statistics show us that working over the side too often results in death and injury. What can we learn from the two cases illustrated in this article? First, workers should check to see if equipment can be brought up on deck or put down in the water before work is begun. If this is not possible, then all persons working over the side should wear lifejackets. Finally, never trip a lifeboat's releasing gear lever unless the boat is in the water.

Nautical Queries

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

Engineer

1. A device which normally prevents an action occurring until all other required conditions are met is a (an) _____.

A. limit
B. monitor
C. modulator
D. interlock

Reference: Rosenberg, *Electric Motor Repair*

2. If the air inlet manifold pressure of a diesel engine is increased, the _____.

A. maximum cylinder pressure will decrease
B. ignition lag will increase
C. rate of pressure rise in the cylinder during combustion will decrease
D. exhaust manifold pressure will decrease

Reference: Maleev, *Diesel Engine Operation and Maintenance*

3. Hot gas bypass is one of the methods used to _____.

A. relieve excessive compressor head pressure
B. produce flash gas at the expansion valve
C. reduce flooding of the receiver at low loads
D. defrost the evaporator coils

Reference: Dossat, *Principles of Refrigeration*

4. Coast Guard regulations require safety and relief valves for air service to be provided with a substantial lifting device capable of lifting the disc from its seat at what percentage of the set pressure?

A. 50 percent
B. 75 percent
C. 110 percent

D. 125 percent

Reference: 46 CFR 54.15-10(c)

5. An internal leak in a fuel oil heater can result in _____.

A. water contamination of the fuel oil
B. oil contamination of the heater drains
C. carbon buildup in the heater
D. fluctuating fuel oil pressure

Reference: Maleev, *Diesel Engine Operation and Maintenance*

Deck

1. A tanker's mean draft is 32 feet 5 inches. At this draft, the TPI is 178. The new draft, after loading 1,200 tons, will be

A. 33 feet.
B. 33 feet 4 inches.
C. 33 feet 8 inches.
D. 33 feet 11 inches.

Reference: LaDage, *Stability and Trim for the Ship's Officer*

2. When a cold air mass and a warm air mass meet, and there is no horizontal motion of either air mass, it is called a (an)

A. cold front.
B. occluded front.
C. stationary front.
D. warm front.

Reference: Chapman, *Piloting, Seamanship, and Small Boat Handling*

3. You are approaching a multiple-span bridge at night. The main navigational channel span will be indicated by _____.

A. a red light on the bridge pier on each side of the channel
B. a steady blue light in the center of the span
C. three white lights in a vertical line in the center of the span
D. a flashing green light in the center of the span

Reference: CG 161, *Light List*

4. As the displacement of a vessel increases, the detrimental effect of free surface

A. increases.
B. decreases.
C. remains the same.
D. may increase or decrease depending on the fineness of the vessel's form.

Reference: LaDage, *Stability and Trim for the Ship's Officer*

5. If at night a vessel displays three all-around red lights in a vertical line, during the day she may show

A. three balls in a vertical line.
B. a cylinder.
C. two diamonds in a vertical line.
D. two cones, points together.

Reference: International Rules, Rule 28; COMDTINST 1M6672.2A

Answers

Engineer
1-D; 2-C; 3-D; 4-B; 5-B
Deck
1-A; 2-C; 3-C; 4-B; 5-B

If you have any questions concerning "Nautical Queries," please contact Commanding Officer, U.S. Coast Guard Institute (mvp), P.O. Substation 18, Oklahoma City, Oklahoma 73169; telephone (405) 686-4417.

Keynotes

Notice of Availability of the Finding of No Significant Impact

CGD 77-069, Safety Standards for Existing Self-Propelled Vessels Carrying Bulk Liquefied Gases (April 2)

In the Federal Register (50 FR 10264) issue of March 14, 1985, the Coast Guard published proposed safety standards for existing self-propelled vessels carrying bulk liquefied gases in U.S. waters. A Draft Economic Evaluation was placed in the rulemaking docket and made available for public comment during the 90-day comment period provided for the NPRM, but a specific statement giving public notice of the availability of the finding of no significant impact (FONSI) was not included in the preamble to the proposal. To ensure full public participation with respect to the environmental considerations involved in this rulemaking, the Coast Guard gave specific notice of the FONSI's availability for public comment for an additional 30-day comment period.

Final Rule

CGD 86-020, Great Lakes Pilotage Rates (April 9)

The Coast Guard is amending the Great Lakes Pilotage regulations by increasing basic pilotage rates by 13 percent in District 1 and 6 percent in District 3. No change is made in the basic rates in District 2. The revision in rates is needed to correct disparities in the manner various expenses have been recognized in the past. These changes are intended to provide parity in pilot compensation among the three Districts. Effective date is May 11, 1987.

CGD 87-008, Changes to Coast Guard District Boundaries and Reassignment of Units (April 21)

This rule redescribes the boundaries of Coast Guard Districts and reassigns various Marine Inspection and Captain of the Port Zones to reflect organizational changes in the Coast Guard. The Coast Guard, in conjunction with an internal realignment of support functions, is reducing the number of Coast Guard districts from 12 to 10. The Third and Twelfth Coast Guard Districts are being disestablished. The geographic area previously under the jurisdiction of the Twelfth Coast Guard District is being absorbed into the Eleventh Coast Guard District. The geographic area previously under the jurisdiction of the Third Coast Guard District is being divided; the northern portion becomes part of the First Coast Guard District, and the southern potion becomes part of the Fifth Coast Guard District. This rule also assigns the Marine Inspection and Captain of the Port Zones previously in the Twelfth District to the Eleventh District, and those previously in the Third District to the First and Fifth Districts. These organizational changes will not affect any Coast Guard services to the public. For further information, contact LCDR E. A. Calhoun, Commandant (G-CPA), U.S. Coast Guard, Washington, DC 20593-0001; telephone (202) 267-2405.

Final Rule; Suspension of Effective Date

CGD 84-069a, Lifesaving Equipment; Immersion Suits (April 23)

The effective date of the final rule for lifesaving equipment which appeared in the Federal Register on January 12, 1987 (52 FR 1185) is being suspended. Two changes to the specification for immersion suits are needed in light of recent interpretations of the International Convention for Safety of Life at Sea which came to our attention after the

comment period closed. It would be pointless for the Coast Guard to issue Certificates of Approval for immersion suits which do not fully comply with the requirements of the International Convention for Safety of Life at Sea, as amended, and IMO Resolution A-521. Postponement of the effective date of the final rule is therefore necessary in order to leave current approvals of exposure suits in effect until the public has an opportunity to comment on these latest proposed changes. The effective date of final rule (52 FR 1185) is hereby suspended until further notice. The effective date will occur with the finalization of the Supplemental Notice of Proposed Rulemaking. A "Proposed Rule -- Supplemental Notice" addressing the needed changes is published below.

Notice of Proposed Rulemaking

CGD 86-031, United States Aids to Navigation (April 9)

This proposal publishes regulations which would conform the U.S. Aids to Navigation System to the International Association of Lighthouse Authorities (IALA) Maritime Buoyage System. This proposal would increase maritime safety and provide a uniform international aids to navigation system by assuring U.S. participation in the IALA system. This proposal is required to inform U.S. mariners of the ongoing changes, and to eliminate unnecessary information from the present regulations. A change is also made to Part 66 of Title 33 to reflect the change to a uniform international aids to navigation system. A change is made to Part 100 of Title 33 to reflect changes made in Part 62.

Announcement

CG 87-024, Chemical Transportation Advisory Committee, Reestablishment (April 9)

The Coast Guard announces the reestablishment of the Chemical Transportation Advisory Committee. The purpose of the Committee is to provide advice and consultation to the Coast Guard's Office of Marine Safety, Security, and Environmental Protection with respect to water transportation of hazardous materials in bulk. For further information, contact CDR Robert Tanner, U.S. Coast Guard (G-MTH-1), 2100 Second Street, SW, Washington, DC 20593; telephone (202) 267-1577.

Notice

CG 87-019, Measures To Prevent Unlawful Acts Against Passengers and Crews On Board Ships (April 9)

This notice publishes the International Maritime Organization Circular 443, 1986, on Measures To Prevent Unlawful Acts Against Passengers and Crews On Board Ships. Circular 443 contains a set of recommended preventative security measures which should be utilized by both passenger vessels and the facilities which serve them, to increase the safety and security of passengers and crews. Adoption of these guidelines, in coordination with increased emphasis on passenger terminal and vessel security by Coast Guard Captain of the Port offices, will provide improved levels of security for passenger vessel operations in U.S. ports.

Advance Notice of Proposed Rulemaking

CG 86-074, Regulations for Self-Elevating Offshore Service Vessels (Liftboats) (April 16)

The Coast Guard is soliciting early public input and comment concerning a proposal to establish safety standards for self-elevating offshore service vessels, commonly known as liftboats. The high rate of casualties experienced by these vessels emphasizes the need for specific regulations addressing the hazards inherent to their operations. The primary areas of regulation tentatively being considered relate to vessel design, equipment, and operating standards for both new and existing vessels. The Coast Guard anticipates that the development and enforcement of standards specifically addressing the unique hull forms and operating characteristics associated with liftboats should significantly improve their safety record. Comments must be received on or before July 15, 1987. Comments should be mailed to Commandant (G-CMC/21)

(CGD 86-074), U.S. Coast Guard, Washington, DC 20593-0001.

Proposed Rule, Supplemental Notice

CGD 84-069a, Lifesaving Equipment; Immersion Suits (April 23)

The Coast Guard proposes two revisions to the final rule containing specifications for approval of immersion suits which appeared in the Federal Register of January 12, 1987 (52 FR 1185). The effective date of that final rule is suspended indefinitely by the "Final Rule -- Suspension of Effective Date" published above. The changes proposed involve the test procedures for donning at low temperature and for body strength. The changes are needed to conform the regulations to the International Convention for the Safety of Life at Sea, 1974 (SOLAS 74), as amended. Comments on this proposal must be received on or before June 8, 1987.

U.S. Department
of Transportation

**United States
Coast Guard**

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