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CONTROVERSIAL RULEMAKING: FIRE-SUPPRESSION SYSTEMS & VOYAGE PLANNING FOR TOWING VESSELS

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PREAMBLE

[GCMA Editorial Note: We edited some of this information from the Federal Register to inform our mariners about Coast Guard firefighting and voyage planning regulations that are currently in effect. We followed this rulemaking throughout its long process by attending meetings of the Towing Safety Advisory Committee (TSAC) and reviewing pertinent accident reports

*GCMA expresses significant reservations and even indignation on this rulemaking that we clearly label as such. For a verbatim copy of this "Preamble," consult the "source" listed below. Licensed officers must obey the current regulations cited in this report. The **Source** of this information is Docket #USCG-2000-6931, 68 FR 22604-22614, April 29, 2003 and significant changes that appeared at 69 FR June 18, 2004.]*

Summary: This interim rule was supposed to reduce the number of uncontrolled engineroom fires and other mishaps on towing vessels. It is directed only at towing vessels. The rule, as written, may save lives, reduce property damage, and reduce the associated threats to maritime commerce and the environment.

Background and Purpose: In 1996, as a result of the tugboat SCANDIA's catching fire and causing the spill of

about 818,000 gallons of home heating oil from the barge NORTH CAPE, which it was towing, Congress directed the Secretary of Transportation to prescribe rules for fire-suppression equipment on towing vessels. The Coast Guard also solicited public comments on principles of voyage planning for the development of a future Navigation and Vessel Inspection Circular (NVIC). *[GCMA Editorial note: We suggest you view these as two unrelated items in the same rulemaking package. Their only relationship is that they occurred in the same accident. However, both items are significant to towing vessel personnel.]*

While most of the comments disagreed with USCG proposals for fire-suppression equipment, most agreed with the proposals for added safety measures, such as communication systems and fire-detection systems. Consequently, the Coast Guard divided the fire-protection issues into two separate rulemakings. The non-controversial requirements were addressed in an interim rule published on October 19, 1999. That rule implemented requirements for general-alarm systems, internal-communication systems, fire-detection systems, remote fuel-shut-off valves, and monthly drills on all non-exempt towing vessels. However, that rule did not address requirements for fire-suppression systems, either manual or fixed.

The Coast Guard began a separate rulemaking to address the controversial requirements for fire-suppression systems. Congress directed that the Coast Guard consider requiring the installation, maintenance, and use of fire-suppression systems or other such measures on towing vessels. Congress further directed that the Coast Guard develop rules for the installation of a fire-suppression system or other measures to provide adequate assurance that a fire on board a towing vessel, that is towing a non-self-propelled tank vessel, can be suppressed under reasonably foreseeable circumstances. This requirement was a direct outcome of the SCANDIA-NORTH CAPE accident.

THE SCANDIA NORTH CAPE ACCIDENT

[Source: NTSB/MAR-98/03 adopted July 14, 1998. GCMA File #M-099.]

Executive Summary: On Friday afternoon, January 19, 1996, the U.S. tug SCANDIA had an engineroom fire while towing the unmanned U.S. tank barge NORTH CAPE, 4.5 miles off Point Judith, Rhode Island. All six crewmembers abandoned the SCANDIA amid 10-foot waves and 25-knot winds; however, no one was injured. The crew was unsuccessful in its attempts to release the anchor of the barge, which ran aground and spilled 828,000 gallons of home heating oil, causing the largest pollution incident in Rhode Island's history, an incident that led to the closing of local fisheries.

The National Transportation Safety Board determines that the probable cause of the fire damage aboard the tug SCANDIA and the subsequent grounding of and pollution from the barge NORTH CAPE was the Eklof Marine Corporation's inadequate oversight of maintenance and operations aboard those vessels, which permitted a fire of unknown origin to become catastrophic and eliminated any realistic possibility of arresting the subsequent drift and grounding of the barge. Contributing to the accident

was the lack of adequate U.S. Coast Guard and industry standards addressing towing vessel safety.

Inspecting "Uninspected Towing Vessels" is an idea that has never been popular. The towing industry has never been thrilled with the idea of bringing their vessels up to the tough inspection standards the Coast Guard has required of other segments in the industry. Towboatmen are not happy about being bogged down in more government red tape. And, surprisingly, the Coast Guard says it is not thrilled with the idea, either. The following letter by Captain P. A. Barney" Turlo (USCG, Ret) was printed in the December 1998 issue of WorkBoat magazine. Captain Turlo was the Commanding Officer at MSO Providence at the time of the accident.

As reported in your December issue, the National Transportation Safety Board issued its final report on the 1996 grounding of the tug SCANDIA and tank barge NORTH CAPE, which resulted in an oil spill of over 800,000 gals. into the waters of Rhode Island Sound.

Among other items, the NTSB recommended that the Coast Guard develop risk-mitigation regulations for tug-barge units that provide a level of safety equivalent to those provided by the regulations for tankers.

The NTSB might as well have written that recommendation on a paper airplane and tossed it out the nearest window. The Coast Guard has no intention of developing equivalent regulations for tugs. Why? Because the Coast Guard already made its intentions known in its own investigation of the very same casualty. The results of the investigation were published on Aug. 7, 1998-a little less than a month after the NTSB published its report.

The Coast Guard's own investigating officer made a recommendation that is very similar to the NTSB's. He wrote that the Coast Guard should consider recommending required "Coast Guard inspection of all towing vessels that tow bulk hazardous liquid barges," and that inspection standards should "equal current standards for bulk hazardous liquid ships which pose similar risks."

What was the Coast Guard Commandant's reply to the investigating officer's recommendation? "We do not concur with this recommendation."

There is a compelling argument that tugs towing oil barges should meet tank ship standards. The NTSB report included a table that specifically highlighted the differences between tank ship requirements and uninspected towing vessel requirements. They include:

- Structural Fire Protection. Tank Ships: Incombustible bulkheads, decks, insulation, ceiling, linings. Tugs: Combustible materials permitted.
- Fixed Firefighting Systems in Machinery Spaces. Tank Ships: Required. Tugs: Not required.
- Tank Ships: Portable, Semi-Portable Fire Extinguishers Required. Tugs: Portables.
- Fire Pump and Fire Main System. Tank Ships: Two required. Tugs: Not required.
- SCBAs and Firesuits. Tank Ships: Two Required. Tugs: Not required.
- Anchors and Handling Equipment. Tank Ships: Required. Tugs: Not required.

Furthermore, inspected vessels are required to meet

strict standards for electrical installations, steering gear, fuel systems, piping, watertight integrity and machinery installations. Tugs have no such standards.

The Coast Guard has published proposed rules for towing vessels that are intended to enhance safety. However, one finding of the NTSB report was that the "Coast Guard's Notice of Proposed Rulemaking proposes a lower level of safety for existing tugs than for new tugs and would not make existing tugs any safer from the kind of fire that the SCANDIA experienced in this accident."

So much for preventing future casualties. Would Coast Guard inspection and certification of tugs have prevented the SCANDIA casualty? Yes. The Coast Guard vessel-inspection program includes annual safety exams to ensure vessels meet the standards for electrical installations, firefighting installations, bilge systems, lifesaving gear, navigation-safety gear, steering gear, piping, fuel systems, and overall safety of the vessel and crew. The litany of safety problems experienced by the SCANDIA would have resulted in the immediate cessation of the tug's operation, if the USCG had inspected the vessel. The following were noted in the NTSB report: a turbocharger oil leak; a fire pump casing that "was rusted through ('quarter-size holes') to the point that a "backup bilge pump was being used instead, a boiler shut down due to fire hazard, and fire hose threads" that did "not match tug piping.

Furthermore, per the Coast Guard's investigation, there "was an unlocated electrical short aboard the SCANDIA. Crewmembers had repeatedly received electrical shocks for several months."

The Coast Guard concluded that the SCANDIA fire "may have been caused by malfunction of electrical equipment." Investigators also found some inappropriate routing of electrical wiring, where fuses and circuit breakers had been bypassed. An electrical engineering report by investigators from other federal agencies states the SCANDIA's electrical wiring looked old and deteriorated.

In the Coast Guard's report, the investigating officer also recommended that the Coast Guard consider establishing regulations that would "limit the use of combustible materials in the construction and outfitting of new and existing tugs.

The NTSB determined that crew fatigue was "not causal to this accident." However, crew size is definitely an issue. Part of the towing industry's concern with inspection and certification of tugs revolves around the fact that the Coast Guard establishes crew sizes for commercial ships that it inspects and certifies. The industry is concerned about the higher costs associated with larger crews.

Management would have the public believe that tugs are adequately and safely manned. However, anecdotal evidence shows that many tug crews feel they are overworked and that tugs are undermanned.

What does the future look like? The American Waterways Operators is moving ahead with its Responsible Carrier Program. However, not all tug companies belong to AWO. And, the RCP does not have the mandatory electrical, machinery, manning and

structural fire-protection standards that are required on USCG-inspected vessels.

I guess port and waterway overseers will have to experience a spill that is more serious than the 828,000 gallons of oil spilled in Rhode Island before there is "justification" for such action by the Coast Guard.

[GCMA Comment: This looks very much like a conspiracy participated in by Coast Guard's upper-level management. The regulations that followed were nothing more than a stop-gap measure that the towing industry turned into a toothless tiger. However, in 2004 Congress ordered the inspection of towing vessels and a study of "crew endurance." The towing industry, however, persists in its efforts to pull the teeth from the tiger.]

On March 1, 2003, the Coast Guard was transferred from the Department of Transportation to the Department of Homeland Security (DHS) further muddying the waters.

<p>DISCUSSION OF THE FINAL RULE: FIRE PROTECTION & SUPPRESSION</p>

This Final Rule applies to most towing vessels over 26-feet (8 meters) in length. This rule prescribes that most (but not all) towing vessels

- be fitted with fire-suppression equipment in their enginerooms;
- not proceed on a trip or voyage before completing a voyage plan for the trip or voyage.

This rule prescribes separate requirements for vessels in inland service and those in ocean or coastal service.

Any towing vessel that engages only in assistance towing, emergency or pollution responses, fleeting duties in a limited geographical area, such as a fleeting-area for barges or a commercial facility, and used for restricted service, such as making up or breaking up larger tows may be exempt from the measures. The rule defines certain terms to help you better understand which vessels are exempt and which are not. The rules apply to all other towing vessels unless exempted by the Captain of the Port.

Fixed Fire Suppression Systems

In its original rulemaking, Coast Guard fire experts required a Fixed Fire-Suppression System. However, this proposal was so unpopular that the Coast Guard backed off and now considers manual fire-fighting equipment adequate for towing vessels in inland service.

The Coast Guard previously proposed a combination of manual fire-fighting measures instead of fixed fire-suppression systems for existing vessels. They were concerned that gaseous fire-suppression systems (like carbon dioxide) would not be effective on existing vessels because those vessels' enginerooms typically have windows, doors, and other openings that could allow the fire-suppression agent to leak out of the engineroom. Fixed total-flooding fire-suppression systems (like carbon dioxide) cannot extinguish a fire, unless there is an adequate concentration of the extinguishing agent that enters the fire area and remains there stays for a minimum "soak time." They were also concerned

that the agent might leak into occupied areas, threatening the health of the crewmembers. At the time, carbon dioxide CO₂ was the only agent for fixed systems approved and available. Carbon dioxide is not intended for use in occupied areas, and areas protected by it must be evacuated before it is discharged. If inadvertently released, it could cause serious injury or death to exposed personnel.

However, during the rulemaking process, the Coast Guard approved three new agents for fixed fire-suppression systems that are not harmful to people or the environment if they are inadvertently released. Because these new agents were available, the Coast Guard decided that fighting fires with manual equipment would pose unnecessary risk to the crew and yet be less effective than using fixed fire-suppression systems.

Because these new fire suppression systems were available and on the market, the Coast Guard fire experts changed their original proposal and instead would have required all non-exempt vessels to install such systems, with the option of using several different agents that did not carry the same level of risk associated with carbon dioxide.

[GCMA Comment: We appreciate that Coast Guard professionals considered the health and welfare of the mariners who work on uninspected towing vessels. We understand the political pressure they were put under in an attempt to defend their position. Consequently, we emphasize their professional responses in our report.]

The Coast Guard felt that this would allow owners of towing vessels the option of selecting some type of fixed fire-suppression system that would be effective on their vessels regardless of the configuration of the engine room.

[GCMA Comment: The estimated cost of fixed fire suppression systems was between \$25,000 and \$55,000 per towing vessel depending upon its size.]

Unfortunately for mariners, the public response that came primarily from vessel owners to the Coast Guard's new proposal was overwhelmingly negative ó mainly because it would require a considerable investment by the boat owners ó some on older towing vessels of doubtful value. Most of the comments opposed requiring fixed fire-suppression systems on towing vessels in inland service, and suggested reverting to the (riskier) manual fire-fighting measures proposed earlier, or suggested a similar level of protection.

[GCMA Comment: To identify each members of "the public" that provided comments for this rulemaking, consult the internet at <http://dms.dot.gov> and "simple search" 6931. Each mariner serving on a towing vessel should clearly identify his/her own safety concerns in light of these existing rules.]

[GCMA Comment: In 2004 Congress required that towing vessels undergo USCG inspection. We believe this is an excellent opportunity for the Coast Guard (or an independent outside agency) to re-evaluate these regulations with much greater consideration for the safety of our mariners.]

[GCMA Position: GCMA supported the Coast Guard position that favored the installation of modern fire-suppression equipment. We pointed out that there is no requirement for masters, mates, pilots, apprentice mates/steersmen or other crewmembers of towing vessels to attend firefighting school except for masters and mates on “oceans” routes. Nor is there any requirement for towing vessels to carry breathing apparatus or other personal protection gear normally provided to firefighters. The cost of the proposed fire suppression equipment pales in comparison to the value of each life saved that the government places as \$2,700,000 in its rulemaking analysis.]

The reasons for the towing industry’s strong opposition to installing modern fire suppression equipment were summarized by the Towing Safety Advisory Committee (TSAC) ó many of whose appointed members had a vested interest in its outcome:

- Fixed fire-suppression systems would not be effective in existing towing vessels, because the engine rooms are not airtight.
- Existing vessels’ engine rooms cannot be made airtight without structural modifications that would typically cost more than the fixed systems themselves. Therefore, if such a system is to be installed, it must be designed to compensate for the unsealed openings; this would require a major increase in the quantity of extinguishing agent.
- Existing towing vessels lack sufficient space for banks of extinguishing-agent cylinders, considering the amount of agent that would likely be needed to compensate for unsealed openings.
- Congress did not direct the Coast Guard to require only fixed systems. It allows the Coast Guard to require óa fire suppression system or other measures to provide adequate assurance that fires onboard towing vessels can be suppressed under reasonably foreseeable circumstances.ö
- The Coast Guard underestimated the true costs to install fixed systems on all vessels and did not demonstrate that the limited benefits in prospect would outweigh the substantial costs of implementing the rule.
- The Coast Guard’s own data on casualties do not support a need for fixed systems. Of the 105 engine-room fires reported (in a 4-year period, 1992-1996), over 80% were extinguished by the crew using portable extinguishers or fire hoses, with only 7 injuries. About 60% of the fires resulted in damages assessed at \$10,000 or less, and less than 5% of them resulted in pollution.

[GCMA Position: It is clear that mariners need more direct representation on TSAC where important decisions are made that affect safety and working conditions. More mariners who work on towing vessels need to make the effort attend TSAC meetings and express their opinions. All TSAC meetings are open to the public. On August 1, 2005 GCMA submitted GCMA Report #R-417 titled, Request for Congressional Oversight on the Towing Safety Advisory Committee, directly to Congress.]

[GCMA Comment: We continue to question the accuracy of the Coast Guard statistics involving accident and injury reporting. We asked Congress to replace the

Coast Guard’s injury reporting system with one that is comparable to the system used by OSHA to keep better track of our injured mariners. Refer to GCMA Report #R-350, issue #6.]

[GCMA Position: We continue to express our deep concern over the cavalier treatment many mariners receive from their employers following an injury on the job.]

- A fixed system would not have prevented the spill from the barge NORTH CAPE. In fact, it would have stopped the SCANDIA’s engines and meant a long time for the crew to re-introduce fresh air into the engine room and then make the necessary repairs to restart the engines. During this time without propulsion or steering, the grounding would still have occurred.

[GCMA Comment: The Coast Guard accident report shows the main engine stopped soon after the fire started. The NTSB report indicates 4 hours 40 minutes elapsed between the detection of the fire and the final grounding of the tug SCANDIA and tank barge NORTH CAPE.]

- Towing vessels on the inland rivers must rely on their engines and steering systems to navigate in narrow channels and near locks and dams, in strong currents. If a failure of propulsion or steering occurs, there is little time to prevent a vessel from going aground or striking another vessel or a fixed structure. A requirement of fixed systems, along with engine shutdown, instead of enhanced manual equipment, would increase overall risk to safety.

The public also challenged the Coast Guard’s views that manual firefighting posed an unacceptable risk to the crew, and that equipment for it was ineffective for controlling engine-room fires. TSAC performed an independent analysis of USCG data on casualties, which showed that over 80% of the reported fires on inland vessels had been extinguished by the crewmembers with only 7 reported injuries.

[GCMA Comment: The Coast Guard should analyze its own accident data without relying on AWO or TSAC. Refer to GCMA Report #R-370C where we criticize the results of such clearly biased analysis.]

Further investigation revealed that most of the 7 injuries were due to broken lines’ spraying fuel or to other conditions in the engine room and were not attributable to firefighting efforts. Further supporting this argument, many comments agreed that the typical practice on inland towing vessels, in response to a fire, is to attempt ófirst-aid firefightingö using portable extinguishers or fire hoses. If this fails to contain the fire, the crew can readily and safely abandon ship to the tow or the riverbank. Accordingly, the comments argue that the Coast Guard should require only portable extinguishers or fire hoses because the situation on inland vessels is not the same as that on vessels operating in open water, where wind and sea can make conditions perilous.

While the Coast Guard agrees that it may be possible to abandon ship to the tow or the riverbank in some cases, you cannot assume that you can safely make it to the riverbank (or

the tow) in all emergency circumstances. However, after considering all of the comments along with the fire-related casualty statistics available for towing vessels, the Coast Guard decided to accept manual fire-fighting equipment (i.e., fire extinguishers and hose lines) as an alternative to fixed fire-suppression systems on towing vessels operating exclusively on inland waters.

Fortunately, the Coast Guard will still require the installation of fixed fire-suppression systems in the engine rooms of towing vessels whose construction is contracted for on or after August 27, 2003 and that will operate in ocean or coastal waters.

The Rulemaking Made Other Concessions

This rule does not require different types or amounts of fire-suppression equipment for different lengths of towing vessels. Instead, it requires a minimum fire-suppression capability. The fire pump may be either fixed or portable, but a minimum capacity of 80 gallons per minute (gpm) must be available in either case. Also, the smallest fire hose in any case must be at least 1½ inches in diameter. For a portable pump, the standard method used to check its discharge pressure is to use a pressure gage at the pump outlet. Since vessels that use portable pumps will not have fire-main piping connected to them, you do not have to use a pitot tube at the nozzle to check for excessive friction loss in the system. The rule does require, for any non-exempt vessel, a large B-V semi-portable fire extinguisher to further ensure adequate fire-fighting capability for a fire that gets out of hand.

This rulemaking was very narrowly focused in spite of the nature of the accident. It only speaks to "fire drills" although the life of the crew and the Coastguardsmen who came out in the gale to rescue them were all placed in peril. Unfortunately, these regulations only touch on fire drills for towing vessels and mention nothing about heavy-weather preparations, Abandon Ship drills and even the preparation of "Station Bills" (i.e., Muster Lists) for uninspected towing vessels which still are not covered by regulations to this date by existing towing vessel regulations. This truly was a pitiful example of the Coast Guard's superintendence of the U.S. Merchant Marine as required by 46 U.S. Code §2103 and needs to be corrected in the Coast Guard's present regulatory project to inspect towing vessels mandated by Congress.

Lifesaving Issues Should Have Been Addressed

The rescue of the SCANDIA's crew by Coast Guard Station Point Judith did not go off without a hitch and brought out several points in the report. These are certainly meaningful to Coast Guard. However, NTSB Vice Chairman Robert T. Francis submitted the following statement that was added to the end of the NTSB report issued to the public:

"I have concurred in the probable cause of this accident because I believe it adequately addresses the chain of events that ultimately led to the fire aboard the tug SCANDIA and the subsequent grounding of the SCANDIA and the tank barge NORTH CAPE. However, I can not concur in our criticism of the U.S. Coast Guard coxswain of Station Point Judith for his choice of the 41-foot utility boat for the initial response for the rescue of the

crewmembers of the SCANDIA.

"The report acknowledges valid reasons for the coxswain's initial choice of the utility boat was significantly faster, more maneuverable, and offered greater protection from the weather for the crew and, presumably, for the six rescued passengers from the SCANDIA tug. According to our investigation, the multi-mission, 41-foot utility boat is used most often to perform most missions, although the 44-foot motor lifeboat is available for more difficult sea conditions. The coxswain's decision to take the faster and more agile boat to rescue civilians in serious, life-threatening and immediate danger comported not only with the experience of the coxswain and station command, but also with the Coast Guard's procedures for deploying the appropriate boat-procedures that the Safety Board finds to be "adequate."

"Of necessity, our accident investigation process reviews actions taken in such incidents with 20/20 hindsight, which enables the Safety Board to make considered decisions and thoughtful recommendations. However, I can not concur in the use of this distant and cool review to criticize the coxswain's decisions made under immediate, urgent, and critical circumstances on which the lives of the crew of the SCANDIA depended.

"The coxswain could have been better informed about the current weather and sea conditions before he left Station Point Judith. Yet, his decisions, the assembly of the duty boat crew, and the launch for the rescue operation all occurred within approximately 5 minutes. I am reluctant to criticize that sort of timeliness where lives are at stake. And, while outcome-determinative analysis is not desirable for Safety Board investigations, this mission was successful of the crew of the SCANDIA was rescued and the crew of the Station Point Judith 44-foot motor life boat all returned to the station despite the 20minute delay to return to the station for the 44-foot motor life boat.

"The Coast Guard performs the difficult and dangerous job of search and rescue admirably. For the Coast Guard, the answer to the question of initiating a search and rescue operation on our Nation's waters is not "whether" but "when."

"I want to ensure that our investigation and report here do not discourage prudent, courageous action or dampen the enthusiasm and commitment of those who choose to serve in the U.S. Coast Guard."

The Practical Side of the New Regulations

[Source: Quoted from MSO New Orleans, Marine Safety Bulletin, April 2005. Emphasis by underlining is ours.]

By April 29, 2005 all towing vessels regardless of service must have a fire pump with fire hoses and hydrants as specified by 46 CFR 27.301. The fire pump system can either be a fixed or power-driven pump with an installed fire main and hydrants, or a portable pump may be used to meet this requirement. If a portable pump and hoses are used, they must be stowed outside the engine room.

[GCMA Comment: 46 CFR §27.301(e) specifies that a portable fire pump must be self-priming because priming the pump can be a serious problem with certain types of centrifugal pumps.]

The pump must be capable of supplying 1½ inch (40mm) diameter fire hose at a flow rate of at least 80 gpm (300 lpm) with a nozzle pressure of at least 50 psi (344kPa). If a portable pump is used, the pump must be capable of a discharge pressure of 60 psi (414 kPa) measured at the discharge outlet of the pump.

[GCMA Comment: Put a pressure gauge on that old, beat-up barge pump to see if it can double as a “fire pump” under the new regulations. Chances are that it won’t qualify! If not, new portable fire pumps that can maintain the required pressure and comply with the regulations are advertised in the \$2,000 range.]

[GCMA Comment: If your boat is not properly equipped, be sure to notify your office and sign and date an entry in your logbook stating the name of the company supervisor you notified. If you are a licensed officer, CYA!]

[GCMA Comment: If you plan to use a portable fire pump, it is only reasonable for the Coast Guard to expect you to conduct a fire drill using the portable pump and its hose and nozzle. The requirements for training crews to respond to fires appears at 46 CFR §27.209.]

By April 29, 2005, all towing vessels regardless of service whose construction was contracted for before August 27, 2003 must also carry a USCG approved B-V semi-portable fire extinguisher for the protection of the engine room. B-V fire extinguishers are available in a variety of sizes and with different types of extinguishing agents. Because of their larger size, these extinguishers have a connected hose used to discharge the agent.

[GCMA Comment: In other words, you move the hose and its discharge nozzle rather than the extinguisher itself to the site of the fire because the unit is too heavy to move.]

The minimum approved sizes are: foam 6 40 gallons; carbon dioxide 6 100 lbs; dry chemical 50 lbs. A fixed fire extinguishing system may be installed for the protection of the engineroom in lieu of required B-V semi-portable extinguisher on vessels contracted for before August 27, 2003.

Existing fixed fire extinguishing systems may be used to satisfy the requirement for fixed suppression system, if the operator can demonstrate that the system has been designed and maintained in accordance with USCG approval criteria. Certification by a Registered Professional Engineer or by a classification society that the system meets appropriate design criteria is one acceptable method of demonstrating compliance.

[GCMA Comment: Be sure that proof of your vessel’s fixed fire extinguishing system’s design and regular maintenance are available if your towing vessel is boarded. As a licensed towing vessel officer, be sure to CYA.]

The Coast Guard does not intend to schedule examinations expressly to verify compliance with these regulations, but will verify compliance during other towing vessel examination activity. Vessels found to not be in compliance or that have

not yet made arrangements to have fire suppression installed, may have their operations suspended per 33 CFR 160.

[GCMA Comment: Having the Coast Guard end your voyage and tie up your boat until it complies with this regulation may encourage compliance. Failure to comply with a COTP order can result in a penalty of up to \$32,000. Willfully violating the order can result in a penalty of \$50,000 and six years confinement in a federal penitentiary.]

Vessel operators may apply to the Captain of the Port (COTP) for an extension. The request for extension past the April 29, 2005 deadline must be in writing and include an estimated installation date and proof, such as an invoice or statement, that the equipment has been ordered.

For more information contact the Marine Safety Office New Orleans Inspections Department at (504) 589-4210 X 251 or at www.uscg.mil/HQ/G-M/mse4/reg.tow.htm.

Coast Guard Comments

The following paragraphs summarize the reasons and provide the Coast Guard’s fire experts’ view on each issue. They also note the extent to which the USCG accepted each comment in preparing the interim rule.

[GCMA Comment: This section, taken from the preamble of the interim rule, gives mariners a hint of what the Coast Guard professionals really think...with less attention to the political pressure exerted on them later by the boat owners in a public meeting in Huntington, WV. After all, the major towing vessel owners’ trade association is in “partnership” with the Coast Guard and its members exert considerable political and economic pressure and bestow considerable flattery and undeserved praise on compliant public officials.]

Many comments expressed concern over the potential hazards to personnel if carbon dioxide were used as the extinguishing agent. They noted that the concentration of carbon dioxide needed to extinguish fires is above the level safe for personnel. The Coast Guard does not agree that the use of carbon dioxide, in this application, poses an unacceptable risk. Approved carbon-dioxide systems must be fitted with pre-discharge alarms and devices that delay the discharge until personnel have been alerted to vacate the space. This interim rule has not changed in response to those comments.

A number of comments expressed concern about the lack of available space to house equipment for fixed fire-extinguishing systems on existing vessels. The Coast Guard agrees that this view may have merit due to the many possible towing-vessel designs, and has dealt with it in the changes that exempt from the requirement of fixed systems all inland towing vessels, and allowed a semi-portable fire-extinguishing equipment alternative on towing vessels in ocean or coastal service whose construction was contracted for before August 27, 2003.

[GCMA Comment: Requiring a B-V fire extinguisher is one positive safety development that provides additional

safety for our mariners.]

Other comments stated that existing engine rooms are typically not airtight, and that doors and windows must be open during warm summer months to ventilate them. They surmise that these features would not allow the effective use of total-flooding gaseous fire-extinguishing agents. The Coast Guard disagrees that engine rooms must be completely airtight for the effective use of such agents. Larger amounts of agent can compensate for unsealed openings. Still, as previously acknowledged, many existing towboats have limited space available for fixed systems. If larger amounts of agent became necessary to compensate for unsealed openings, the lack of space could preclude the use of such systems. This criticism counted in the preparation of this interim rule.

Several comments noted that the discharge of a fixed fire-extinguishing system would cause a vessel's engines to shut down, thereby creating a navigational hazard. The Coast Guard recognizes that automatically discharged carbon dioxide (and some other agents) from fixed systems may starve main engines of oxygen, but typical manually-discharged fixed-systems give the operator discretion to determine whether potential navigational hazards represent greater immediate risks than fires in main-engine rooms. The Coast Guard agrees that a vessel's engines may shut down if the air intakes are located inside the engine room, unless the intakes draw air from outside the engine room. Modifications to provide external intakes would require structural changes that might not be feasible, in some cases, again because of the limited space available on some existing towboats. This argument is among the reasons that led this interim rule to allow semi-portable and portable equipment as an alternative on existing vessels.

Need for the Rule. Many comments argued that the analysis of casualties presented in the SNPRM did not demonstrate a sufficient risk of fire to warrant fixed fire-extinguishing systems. In the years 1992-1996, there were only 105 reported engine room fires, with only 7 injuries and no fatalities. In those years, moreover, 80% of the reported fires were extinguished without the use of fixed systems. It is reasonable to expect that the incidence and consequences of future casualties would generally follow this trend. This influenced the Coast Guard's decision to use semi-portable and portable fire-fighting equipment on certain categories of towing vessels.

[GCMA Comment: The rest of the story – On February 5, 2005 the Coast Guard reported 494 fires and 41 explosions on towing vessels between 1992 and 2004. These figures received Congressional attention by means of comments to the docket. Refer to <http://dms.dot.gov> and perform a “simple search” to 19977 and go to document 129 on page 3.]

Economic Analysis: Many comments disagreed with the USCG economic analysis, of the costs and benefits associated with this rulemaking. Several suggested that the costs listed were 20-30% lower than would be necessary to retrofit a fixed fire-extinguishing system into an existing engine room. The USCG did not fully agree with these comments. The cost estimates used for the system hardware and installation came

from actual quotes provided by marine fire-protection equipment distributors and were confirmed through several sources. The unknown factor in them, however, was the extent of the modifications necessary on existing towboats. In some cases, only minimal modifications would be necessary to ensure that the systems would function properly. In other cases (for adequate closure of spaces), steel bulkheads, ductwork, self-closing doors, and similar measures might be necessary. The domestic fleet of towboats consists of several thousand boats of different designs and configurations that may entail a variety of modifications to satisfy the rule. Because of this variety, it is only possible to estimate the costs on a generic basis. The Coast Guard agreed that, in some cases, the costs could be significant and considered this as a factor in re-evaluating the rulemaking.

[GCMA Comment: There are an estimated 5,200 towing vessels in service and an estimated 30,000 mariners that serve on them. Our overriding concern is for the safety, health and welfare of those crewmembers.]

Applicability: A number of comments questioned the exemptions listed in §27.100. The limited geographic areas intended are very narrow – for example, within the same harbor or within the company's fleeting yard. In response to these comments, the USCG defined more precisely, in §27.101, what limited geographic areas exemptions will apply.

[GCMA Comment: A more significant concern should be that the average pump used on a towboat to pump barges cannot reach the required 60 psi pressure and pump 80 gpm.]

General Comments: Many comments expressed frustration that the Coast Guard did not recognize industry's self-regulation through the Responsible Carrier Program of the American Waterways Operators (AWO). The Coast Guard is keenly aware of this program and of the increased safety benefits that it provides; but, unfortunately, not all operators of towboats participate in it. Because of this the Coast Guard must require fire-safety measures for engine rooms.

[GCMA Comment: We regard the Responsible Carrier Program as a valuable safety initiative. However, since its recommendations cannot be “enforced,” it is not a viable substitute for adequate government regulation. Refer to GCMA Report #R-276.]

Some comments requested that vessels engaged in either emergency response or harbor assistance be exempt from the new requirements. The Coast Guard agreed with them and changed the interim rule accordingly.

Several comments argued that the Coast Guard should not require qualified fire-fighting training and personal protective gear for crewmembers claiming that the **costs** associated with maintaining the correct gear in the sizes needed for each crewmember would be prohibitive considering that crewmembers may routinely transfer between vessels.

[GCMA Comment: The potential costs of injured or dead

mariners pales in comparison with the cost of the personal protective gear needed to safely fight a fire. If you own a boat, you must pay to protect and insure your employees who undertake dangerous tasks.]

They further stated that many inland-towing companies, adopted corporate practices that restrict their personnel to performing only limited first-aid firefighting before calling for outside help or abandoning the vessel. The companies reason that any further firefighting by these personnel could result in unacceptable risks to the personnel.

[GCMA Position: “Green deckhands” and mariners who are not adequately trained to fight fires in enclosed spaces may not understand the risks they face in a fire. “First-aid” firefighting is an unclear and undefined term. Companies that expect their mariners to perform this type of activity should clearly limit or define that activity in published company operations manuals and strictly apply these limitations in regular fire drills.]

The Coast Guard analysis of casualties indicates that all fires put out by crewmembers were put out by crewmembers without benefit of extensive training or protective clothing and therefore considered the costs and benefits associated with such training and clothing, and decided not to require these in this interim rule.

[GCMA Comment: Crewmembers did not have the benefit of extensive training because Coast Guard regulations never required it for this class of vessels. This needs to be remedied. Crewmembers fought towing vessel fires without the benefit of protective gear because it was never provided. The absence of death or injury should be attributed to good luck and nothing else.]

Several other comments stated that, in their opinion, portable equipment would be adequate to control engine room fires because fire-detection systems are now mandatory on all non-exempt towing vessels effective October 8, 2001. The Coast Guard agrees that those systems will provide early warning of potential fires and, in most cases, will allow crewmembers to act before the fires grow to unmanageable sizes. Early detection capability was a factor in their decision to allow the use of portable firefighting equipment.

**DISCUSSION OF THE FINAL RULE:
VOYAGE PLANNING**

With respect to voyage planning, the most significant difference between the proposal and the requirements in this interim rule is who it applies to (i.e., its applicability).

The Coast Guard previously proposed voyage planning for all towing vessels. While the Coast Guard still maintains that all these vessels should engage in voyage planning, they will now require it only for those vessels operating in unprotected waters, beyond the baseline of the territorial sea.

Most comments on this rulemaking opposed requiring voyage planning for towing vessels on Western Rivers and other inland waters. The Coast Guard agreed, and required it only for these vessels (each with at least one barge in tow)

when they operate beyond the baseline of the territorial sea. Many suggested that the USCG define the term voyage. For the purposes of this rule, a voyage (or trip) is a movement of a towing vessel that is underway, with at least part of the transit being seaward of the territorial-sea baseline as defined in 46 CFR Part 7.

**ACCIDENT REPORT CITES LACK OF
VOYAGE PLANNING IN THE FATAL
QUEEN ISABELLA CAUSEWAY ACCIDENT**

The Accident

The Accident: At 2110 on September 14, 2003, the M/V BROWNWATER V departed Brownsville, TX pushing four loaded hopper barges ahead of it, lined up in a straight line, single file.

At 2400, the Pilot, Captain ■■■, took the helm. The tow successfully cleared the Long Island swing bridge at 0145 on September 15th, and at 0200 struck the Queen Isabella Causeway Bridge approximately 375 feet west of the channel almost head on. The collision caused two 80-foot sections of the bridge to collapse. Following the collapse, nine vehicles entered the water through the missing bridge sections resulting in eight deaths and three injuries.

Formal Investigation

Following the accident, Captain ■■■ voluntarily surrendered his license. The Coast Guard conducted a One-Person Formal Board of Investigation and submitted its report several months later. The report was reviewed by MSO Corpus Christi, Eighth District Headquarters, and finally by the Commandant with all sorts of agreements, disagreements, and suggestions for future actions. The formal report finally was released on April 28, 2005 (more than 3½ years after the accident. The final report, tagged with comments by everybody under the sun, leaves us with a mixed message.

Voyage Planning: Only One Aspect of This Case

The USCG accident report touched upon voyage planning in its formal Safety Recommendation #5714: Voyage Planning for Towing Vessels that we extracted from this report:

It should be noted that the regulatory proposal on "Fire-Suppression Systems and Voyage Planning for Towing Vessels" outlined in the Notice of Proposed Rulemaking, October 6, 1997 (62 FR 52057) (originally) contained requirements for voyage planning analysis that are directly connected to this particular case.

The proposed regulations required that companies should have documented policies and procedures in place to address decision-making criteria related to risk and route analysis of voyages including equipment size, suitability, and special equipment needs. All towing vessels would have been required to complete a voyage plan that included minimum requirements. The following proposed regulations may have prevented the casualty:

a.) Navigation charts for the intended route, applicable extracts from publications including Coast Pilot, Coast

Guard Light List, and Coast Guard Local Notice to Mariners for the area;

- b.) Applicable current and forecasted weather conditions for the duration of the voyage including visibility, wind, and sea state;
- c.) Extracts from tide and tidal current tables;
- d.) Intended speed and estimated time of arrival at the anticipated waypoints; and
- e.) Master's standing orders for closest points of approach, special conditions, and critical maneuvers.

Unfortunately the proposed rule was modified by the April 29, 2003 Interim Rule contained in Federal Register (68 FR 22604) to require voyage planning for only those towing vessels operating in unprotected waters, beyond the baseline of the territorial sea. In light of this accident, we recommend that Commandant reconsider applying the Voyage Planning requirements to all towing vessel voyages.

Missed Opportunity

Following the SCANDIA-NORTH CAPE oil spill disaster off the Rhode Island coast in January 1996, Congress was on the right track when it demanded "voyage planning" (as well as "fire suppression"). Unfortunately, the Towing Safety Advisory Committee gutted the "voyage planning" requirement by pointing out that detailed voyage planning would be a nuisance on the western rivers.

GCMA watched the voyage-planning proposal as TSAC killed its application to inland waters and rivers. Voyage planning on the western rivers was a nuisance because it was clear that the committee, dominated by large river barge line interests, did not want anyone to challenge their corporate decision-making relating to the size of a tow in the number of barges or tonnage, towing vessel horsepower as related to tow size or route, or to inject factors like weather conditions, the effect of tides or currents on their desire to move more cargo and make more money.

It is clear that the Coast Guard allowed the towing industry too much leeway in self-regulation. Our mariners expect that new towing vessel inspection regulations will set meaningful and enforceable vessel operation standards.

This case essentially involved dispatching an overloaded tow that was caught in strong and unfavorable currents of 4 to 5 miles per hour and an exceptionally high tide resulting from the passage of a hurricane offshore. At the time of the bridge allision, the tow had just enough headway to "tap" the unprotected causeway bridge supports as its lead barge was swept over the flats by the current far outside the channel. Expressed differently, the tow with its existing power plant reported by GCMA-member and forensic investigator, the late Captain Jay Disler, to be in poor condition and unable to deliver its advertised horsepower, was unable to take headway off in time to prevent striking the bridge.

Of the two licensed officers, the Captain, who was off duty and asleep at the time appeared to have significantly greater "local knowledge" of the waters at the important turn before passing under the bridge than the Pilot on duty. However, when manning a vessel, each licensed officer must have the requisite skill and knowledge that conditions call for. In a two-watch system, as exists on most towing vessels, there are no licensed, qualified personnel available to assist the pilot when he encounters a difficult situation.

[GCMA Position: GCMA favors a three-watch system in company with the 12-hour rule to provide a vessel in 24-hour operation with adequate back-up of licensed officers who work reasonable work-hours.]

Another Aspect of This Case

[Source: E-mail, 06/10/05 - Letter to the GCMA News Editor]

Thank you for your comments concerning the Brown Water V and Queen Isabella allision. At the time of this incident I was the skipper of a local headboat (Fishtales). Our dock is located at the west end of the causeway in Port Isabel.

I just wanted to send you a note concerning the current issue.⁽¹⁾ While "unexpected" high water was present and the current was stronger than normal, one point of interest has never appeared in any print. ⁽¹⁾*GCMA Newsletter #30, May 2005, pgs 21, 22.*

You see, this curve is not an "S" curve but an "L" (of almost 90 degrees). The techniques used by the towboats to make this turn are unique. On the northbound leg, just after leaving the swing bridge, a pilot will pick up a current from the southeast. Because of the shoal areas, you can pretty much guess when you will pick up the current. So, you take that into consideration when deciding how you will approach the turn. Unfortunately, this night, the current came as a surprise. Why?

Well, in keeping with the federal mandate that the (Intracoastal Waterway) ICW be maintained at 12 ft., approximately two weeks prior to this allision, the ICW from the Queen Isabella Causeway to the Port Isabel Swing Bridge was dredged. The spoil from this dredging activity was directed to the aforementioned shoal.

The effect of this is two-fold. (1)The current usually expected was not there because of the increase in the shoal. This caused the current to slow and/or get redirected. (2)This redirection could have possibly caused the pilot to not feel the effect of the current until he was farther north. When it hit him, whatever action he took wouldn't have made any difference and because of the possible venturi effect, the current probably picked up speed (s/ Capt. Pat Kelley, MidWest Maritime, Inc.)

Reconsideration of Voyage Planning Issues

In a response to our letter of January 30, 2006 we received this letter from the Chief, Office of Operating and Environmental Standards on May 25, 2006:

"We are preparing a Task Statement to be considered by a Working Group of the Towing Safety Advisory Committee (TSAC) on voyage planning to include review of current voyage planning requirements in 33 CFR 164.80© and discussions to determine if the requirements should be applicable to inland towing vessels."

[GCMA Comment: It did not make much sense to require charts and publications on towing vessels (after the Bayou Canot/Amtrak accident in 1993) without including a requirement for mariners to use these important tools.]

EXISTING REGULATIONS

46 CFR PART 25 – REQUIREMENTS

46 CFR Subpart 25.30 – Fire Extinguishing Equipment

§25.30-1 Application.

(a) The provisions of this subpart, with the exception of §25.30690, shall apply to all vessels contracted for on or after November 19, 1952. Vessels contracted for prior to that date shall meet the requirements of §25.30690.

§25.30-5 General provisions.

(a) Where equipment in this subpart is required to be of an approved type, such equipment requires the specific approval of the Commandant. Such approvals are published in the Federal Register, and in addition, are contained in Coast Guard publication COMDTINST M16714.3 (Series), Equipment Lists.

(b) All hand portable fire extinguishers, semiportable fire extinguishing systems, and fixed fire extinguishing systems shall be of an approved type.

[CGFR 65–50, 30 FR 16653, Dec. 30, 1965, as amended by CGD 96–041, 61 FR 50726, Sept. 27, 1996]

§25.30-10 Hand-portable fire extinguishers and semi-portable fire-extinguishing systems.

(a) Hand portable fire extinguishers and semiportable fire extinguishing systems are classified by a combination letter and number symbol. The letter indicating the type of fire which the unit could be expected to extinguish, and the number indicating the relative size of the unit.

(b) For the purpose of this subchapter, all required hand portable fire extinguishers and semiportable fire extinguishing systems are of the öBö type; i.e., suitable for extinguishing fires involving flammable liquids, greases, etc.

(c) The number designations for size run from öö for the smallest to öVö for the largest. Sizes I and II are hand-portable fire extinguishers; sizes III, IV, and V are semi-portable fire-extinguishing systems, which must be fitted with hose and nozzle or other practical means to cover all portions of the space involved. Examples of the sizes for some of the typical hand-portable fire extinguishers and semi-portable fire-extinguishing systems appear in Table 25.30610(C):

Table 25.30-10(C)

Classification	Foam, Liters (gallons)	Carbon Dioxide, Kilograms (pounds)	Dry Chemical, Kilograms (pounds)
B-I	6.5 (1 3/4)	2 (4)	1 (2)
B-II	9.5 (2 1/2)	7 (15)	4.5 (10)
B-III	45 (12)	16 (35)	9 (20)
B-IV	75 (20)	23 (50)	13.5 (30)
B-V	150 (40)	45 (100)	23 (50)

46 CFR PART 27 TOWING VESSELS

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§27.305 What are the requirements for fire-extinguishing equipment on towing vessels in ocean or coastal service whose construction was contracted for on or after August 27, 2003?

[**Authority:** 46 U.S.C. 3306, 4102 (as amended by Pub. L. 104–324, 110 Stat. 3901); Department of Homeland Security Delegation No. 0170.1.]

[**Source:** USCG-2000–6931, 69 FR 34069, June 18, 2004, unless otherwise noted.]

Subpart A—General Provisions for Fire-Protection Measures and Fire-Suppression Equipment on Towing Vessels

§27.100 What towing vessels does this part affect?

(a) You must comply with this part if your towing vessel operates on the navigable waters of the United States, unless your vessel is one exempt under paragraph (b) of this section.

(b) This part does not apply to you if your towing vessel is -

(1) Used solely for any of the following services or any combination of these services -

(i) Within a limited geographic area, such as a fleeting-area for barges or a commercial facility, and used for restricted service, such as making up or breaking up larger tows;

(ii) For harbor-assist;

(iii) For assistance towing as defined by 46 CFR 10.103;

(iv) For response to emergency or pollution;

(2) A public vessel that is both owned, or demise chartered, and operated by the United States Government or by a government of a foreign country; and that is not engaged in commercial service;

(3) A foreign vessel engaged in innocent passage; or

(4) Exempted by the Captain of the Port (COTP).

(c) If you think your towing vessel should be exempt from these requirements for a specified route, you should submit a written request to the appropriate COTP. The COTP will provide you with a written response granting or denying your request. The COTP will consider the extent to which unsafe conditions would result if your vessel lost propulsion because of a fire in the engine room.

(d) You must test and maintain all of the equipment required by this part in accordance with the attached nameplate or manufacturer's approved design manual.

§27.101 Definitions.

As used in this part:

Accommodation includes any:

- (1) Messroom.
- (2) Lounge.
- (3) Sitting area.
- (4) Recreation room.
- (5) Quarters.
- (6) Toilet space.
- (7) Shower room.
- (8) Galley.
- (9) Berthing facility.
- (10) Clothing-changing room.

Engine room means the enclosed area where any main-propulsion engine is located. It comprises all deck levels within that area.

Fixed fire-extinguishing system means:

- (1) A carbon-dioxide system that satisfies 46 CFR subpart 76.15 and is approved by the Commandant;
- (2) A manually-operated clean-agent system that satisfies the National Fire Protection Association (NFPA) Standard 2001 (incorporated by reference in §27.102) and is approved by the Commandant; or
- (3) A manually-operated water-mist system that satisfies NFPA Standard 750 (incorporated by reference in §27.102) and is approved by the Commandant.

Fleeting-area means a separate location where individual barges are moored or assembled to make a tow. The barges are not in transport, but are temporarily marshaled, waiting for pickup by different vessels that will transport them to various destinations. A fleeting-area is a limited geographic area.

Harbor-assist means docking and undocking ships.

Limited geographic area means a local area of operation, usually within a single harbor or port. The local Captain of the Port (COTP) determines the definition of local geographic area for each zone.

Operating station means the principal steering station on the vessel, from which the vessel is normally navigated.

Towing vessel means a commercial vessel engaged in, or intending to engage in, pulling, pushing, or hauling alongside, or any combination of pulling, pushing, or hauling alongside.

Towing vessel in inland service means a towing vessel that is not in ocean or coastal service.

Towing vessel in ocean or coastal service means a towing vessel that operates beyond the baseline of the U.S. territorial sea.

We means the United States Coast Guard.

Work space means any area on the vessel where the crew could be present while on duty and performing their assigned tasks.

You means the owner of a towing vessel, unless otherwise specified.

§27.102 Incorporation by reference.

(a) Certain material is incorporated by reference into this part with the approval of the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in paragraph (b) of this section, the Coast Guard must publish notice of the change in the Federal Register and make the material available for inspection. All approved material is available at the U.S. Coast Guard, Office of Design and Engineering Standards (G-MSE), 2100 Second Street SW., Washington, DC 2059360001, or from the sources indicated in paragraph (b) of this section, or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202674166030, or go to: http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

(b) The material approved for incorporation by reference in this part and the sections affected are:

- American Boat and Yacht Council (ABYC),
3069 Solomons Island Road, Edgewater, MD 21037-1416
H-25-1986, Portable Fuel Systems for Flammable Liquids, §27.211
H-33-1989, Diesel Fuel Systems
- National Fire Protection Association (NFPA),
1 Batterymarch Park, Quincy, MA 02269-9101
NFPA 302-1998, Fire Protection Standard for Pleasure, and Commercial Motorcraft. §27.211
NFPA 750, Standard on Water Mist Fire Protection Systems, 2003 edition. §27.101
NFPA 2001, Standard on Clean Agent Fire Extinguishing Systems, 2000 edition. §27.101
- Society of Automotive Engineers (SAE), 400
Commonwealth Drive, Warrendale, PA 15096-0001
SAE J1475-1984, Hydraulic Hose Fitting for Marine Applications. §27.211
SAE J1942-1989, Hose and Hose Assemblies, for Marine Applications. §27.211

Subpart B - Fire-Protection Measures for Towing Vessels

§27.201 What are the requirements for general alarms on towing vessels?

(a) You must ensure that your vessel is fitted with a general alarm that:

- (1) Has a contact-maker at the operating station that can notify persons on board in the event of an emergency.
- (2) Is capable of notifying persons in any accommodation,

work space, and the engine room.

(3) Has installed, in the engine room and any other area where background noise makes a general alarm hard to hear, a supplemental flashing red light that is identified with a sign that reads:

Attention General Alarm
When Alarm Sounds or Flashes
Go to Your Station.

(4) Is tested at least once each week.

(b) You or the operator may use a public-address (PA) system or other means of alerting all persons on your towing vessel instead of a general alarm, if the system

(1) Is capable of notifying persons in any accommodation, work space, and the engine room;

(2) Is tested at least once each week;

(3) Can be activated from the operating station; and

(4) Complies with paragraph (a)(3) of this section.

§27.203 What are the requirements for fire detection on towing vessels?

You must have a fire-detection system installed on your vessel to detect engine-room fires. Any owner of a vessel whose construction was contracted for before January 18, 2000, may use an existing engine-room-monitoring system (with fire-detection capability) instead of a fire-detection system, if the monitoring system is operable and complies with this section. You must ensure that

(a) Each detector, each control panel, and each fire alarm are approved under 46 CFR subpart 161.002 or listed by an independent testing laboratory; except that, if you use an existing engine-room-monitoring system (with fire-detection capability), each detector must be listed by an independent testing laboratory;

(b) The system is installed, tested, and maintained in line with the manufacturer's design manual;

(c) The system is arranged and installed so a fire in the engine room automatically sets off alarms on a control panel at the operating station;

(d) The control panel includes

(1) A power-available light;

(2) Both an audible alarm to notify crew at the operating station of fire and visible alarms to identify the zone or zones of origin of the fire;

(3) A means to silence the audible alarm while maintaining indication by the visible alarms;

(4) A circuit-fault detector test-switch; and

(5) Labels for all switches and indicator lights, identifying their functions;

(e) The system draws power from two sources, switchover from the primary source to the secondary source being either manual or automatic;

(f) The system serves no other purpose, unless it is an engine-room-monitoring system (with fire-detection capability) installed on a vessel whose construction was contracted for before January 18, 2000; and

(g) The system is certified by a Registered Professional Engineer, or by a recognized classification society (under 46 CFR Part 8), to comply with paragraphs (a) through (f) of this section.

§27.205 What are the requirements for internal communication systems on towing vessels?

(a) You must ensure that your vessel is fitted with a

communication system between the engine room and the operating station that

(1) Consists of either fixed or portable equipment, such as a sound-powered telephone, portable radios, or other reliable method of voice communication, with a main or reserve power supply that is independent of the electrical system on your towing vessel; and

(2) Provides two-way voice communication and calling between the operating station and either

(i) The engine room; or

(ii) A location immediately adjacent to an exit from the engine room.

(b) Twin-screw vessels with operating-station control for both engines are not required to have internal communication systems.

(c) When the operating-station's engine controls and the access to the engine room are within 3 meters (10 feet) of each other and allow unobstructed visual contact between them, direct voice communication is acceptable instead of a communication system.

§27.207 What are the requirements for fuel shut-offs on towing vessels?

To stop the flow of fuel in the event of a break in the fuel line, you must have a positive, remote fuel-shut-off valve fitted on any fuel line that supplies fuel directly to an engine or generator. The valve must be near the source of supply (for instance, at the day tank, storage tank, or fuel-distribution manifold). Furthermore, it must be operable from a safe place outside the space where the valve is installed. Each remote valve control should be marked in clearly legible letters, at least 25 millimeters (1 inch) high, indicating the purpose of the valve and the way to operate it.

§27.209 What are the requirements for training crews to respond to fires?

(a) *Drills and instruction.* The master or person in charge of a vessel must ensure that each crewmember participates in drills and receives instruction at least once each month. The instruction may coincide with the drills, but need not. You must ensure that all crewmembers are familiar with their fire-fighting duties, and, specifically, with the following contingencies:

(1) Fighting a fire in the engine room and elsewhere on board the vessel, including how to

(i) Operate all of the fire-extinguishing equipment on board the vessel;

(ii) Stop any mechanical ventilation system for the engine room and effectively seal all natural openings to the space to prevent leakage of the extinguishing agent; and

(iii) Operate the fuel shut-off for the engine room.

(2) Activating the general alarm.

(3) Reporting inoperative alarm systems and fire-detection systems.

(4) Putting on a fireman's outfit and a self-contained breathing apparatus, if the vessel is so equipped.

(b) *Alternative form of instruction.* The master or person in charge of a vessel may substitute, for the instruction required in paragraph (a) of this section, the viewing of video training materials concerning at least the contingencies listed in paragraph (a), followed by a discussion led by someone familiar with these contingencies. This instruction may occur

either on board or off the vessel.

(c) *Participation in drills.* Drills must take place on board the vessel, as if there were an actual emergency. They must include ó

(1) Participation by all crewmembers;

(2) Breaking out and using, or simulating the use of, emergency equipment;

(3) Testing of all alarm and detection systems; and

(4) Putting on protective clothing (by at least one person), if the vessel is so equipped.

(d) *Safety orientation.* The master or person in charge of a vessel must ensure that each crewmember who has not (i) participated in the drills required by paragraph (a) of this section, and (ii) received the instruction required by that paragraph, receives a safety orientation within 24 hours of reporting for duty.

(e) The safety orientation must cover the particular contingencies listed in paragraph (a) of this section.

§27.211 What are the specifications for fuel systems on towing vessels whose construction was contracted for on or after January 18, 2000?

(a) You must ensure that, except for the components of an outboard engine or of a portable bilge pump or fire pump, each fuel system installed on board the vessel complies with this section.

(b) *Portable fuel systems.* The vessel must not incorporate or carry portable fuel systems, including portable tanks and related fuel lines and accessories, except when used for outboard engines or when permanently attached to portable equipment such as portable bilge pumps or fire pumps. The design, construction, and stowage of portable tanks and related fuel lines and accessories must comply with ABYC H625 (incorporated by reference in §27.102).

(c) *Fuel restrictions.* Neither you nor the master or person in charge may use fuel other than bunker C or diesel, except for outboard engines, or where otherwise accepted by the Commandant (G-MSE). An installation that uses bunker C, heavy fuel oil (HFO), or any fuel that requires pre-heating, must comply with subchapter F of this chapter.

(d) *Vent pipes for integral fuel tanks.* Each integral fuel tank must meet the requirements of this paragraph as follows:

(1) Each tank must have a vent that connects to the highest point of the tank, discharges on a weather deck through a bend of 180 degrees (3.14 radians), and is fitted with a 30-by-30-mesh corrosion-resistant flame screen. Vents from two or more tanks may combine in a system that discharges on a weather deck.

(2) The net cross-sectional area of the vent pipe for the tank must be ó

(i) Not less than 312.3 square millimeters (0.484 square inches) for any tank filled by gravity; or

(ii) Not less than that of the fill pipe for any tank filled under pressure.

(e) *Fuel piping.* Except as permitted in paragraphs (e)(1), (2), and (3) of this section, each fuel line must be seamless and made of steel, annealed copper, nickel-copper, or copper-nickel. Each fuel line must have a wall thickness of not less than 0.9 millimeters (0.035 inch) except that ó

(1) Aluminum piping is acceptable on an aluminum-hull vessel if it is installed outside the engine room and is at least Schedule 80 in thickness; and

(2) Nonmetallic flexible hose is acceptable if it ó

(i) Is used in lengths of not more than 0.76 meters (30 inches);

(ii) Is visible and easily accessible;

(iii) Does not penetrate a watertight bulkhead;

(iv) Is fabricated with an inner tube and a cover of synthetic rubber or other suitable material reinforced with wire braid; and

(v) Either, ó

(A) If it is designed for use with compression fittings, is fitted with suitable, corrosion-resistant, compression fittings, or fittings compliant with SAE J1475 (incorporated by reference in §27.102); or,

(B) If it is designed for use with clamps, is installed with two clamps at each end of the hose. Clamps must not rely on spring tension and must be installed beyond the bead or flare or over the serrations of the mating spud, pipe, or hose fitting. Hose complying with SAE J1475 is also acceptable.

(3) Nonmetallic flexible hose complying with SAE J1942 (incorporated by reference in §27.102) is also acceptable.

(f) A towing vessel of less than 24 meters (79 feet) in length may comply with any of the following standards for fuel systems rather than with those of paragraph (e) of this section:

(1) ABYC H633 (incorporated by reference in §27.102).

(2) Chapter 5 of NFPA 302 (incorporated by reference in §27.102).

(3) 33 CFR chapter I, subchapter S (Boating Safety).

Subpart C—Fire-Suppression Equipment for Towing Vessels

§27.301 What are the requirements for fire pumps, fire mains, and fire hoses on towing vessels?

By April 29, 2005, you must provide for your towing vessel either a self-priming, power-driven, fixed fire-pump, a fire main, and hoses and nozzles in accordance with paragraphs (a) through (c) of this section; or a portable pump, and hoses and nozzles, in accordance with paragraphs (d) and (e) of this section.

(a) The fixed fire-pump must be capable of ó

(1) Delivering water simultaneously from the two highest hydrants, or from both branches of the fitting if the highest hydrant has a Siamese fitting, at a pitot-tube pressure of at least 344 kPa (50 psi) and a flow rate of at least 300 lpm (80 gpm); and

(2) Being energized remotely from a safe place outside the engine room and from the pump.

(b) All valves necessary for the operation of the fire main must be kept in the open position or must be capable of operation from the same place where the remote fire pump control is located.

(c) The fire main must have a sufficient number of fire hydrants with attached hose to reach any part of the machinery space using a single length of fire hose.

(d) The hose must be lined commercial fire-hose, at least 40mm (1.5 inches) in diameter, 15 meters (50 feet) in length, and fitted with a nozzle made of corrosion-resistant material capable of providing a solid stream and a spray pattern.

(e) The portable fire pump must be self-priming and power-driven, with ó

(1) A minimum capacity of at least 300 lpm (80 gpm) at a

discharge gauge pressure of not less than 414 kPa (60 psi), measured at the pump discharge;

(2) A sufficient amount of lined commercial fire hose at least 40mm (1.5 inches) in diameter and 15 meters (50 feet) in length, immediately available to attach to it so that a stream of water will reach any part of the vessel; and

(3) A nozzle made of corrosion-resistant material capable of providing a solid stream and a spray pattern.

(f) You must stow the pump with its hose and nozzle outside of the machinery space.

§ 27.303 What are the requirements for fire-extinguishing equipment on towing vessels in inland service, and on towing vessels in ocean or coastal service whose construction was contracted for before August 27, 2003?

You must carry on your towing vessel both ó

(a) The minimum number of hand-portable fire extinguishers required by subpart 25.30 of this part; and

(b) By April 29, 2005, either ó

(1) An approved B-V semi-portable fire-extinguishing system to protect the engine room; or

(2) A fixed fire-extinguishing system installed to protect the engine room of the vessel.

§ 27.305..What are the requirements for fire-extinguishing equipment on towing vessels in ocean or coastal service whose construction was contracted for on or after August 27, 2003?

(a) You must carry on your towing vessel **both** ó

(1) The minimum number of hand-portable fire extinguishers required by subpart 25.30 of this part; and

(2) An approved B-V semi-portable fire-extinguishing system to protect the engine room.

(b) You must have a fixed fire-extinguishing system installed to protect the engine room of the vessel.

(c) This section does not apply to any towing vessel pushing a barge ahead, or hauling a barge alongside, when the barge's coastwise or Great Lakes route is restricted (as indicated on its certificate of inspection), so that the barge may operate in fair weather only, within 12 miles of shore, ó or with words to that effect.

Voyage Planning

33 CFR PART 164

NAVIGATION SAFETY REGULATIONS

[GCMA Editorial note: As a direct result of the AMTRAK-Bayou Canot accident in September 1993, the stranding of the loaded tank barge Morris J. Berman near San Juan, Puerto Rico in January 1994, and the stranding of the tug Scandia and the loaded tank barge North Cape on the Rhode Island coast in January 1996 the Coast Guard developed a set of navigation safety regulations directly applicable to towing vessels..]

[GCMA Editorial Reminder for Watch Officers: Other regulations in this series are as follows:

- 33 CFR 164.70 – Definitions.
- 33 CFR 164.72 – Navigational Safety Equipment, charts or

maps, and publications required on towing vessels.

- 33 CFR 164.74 – Towline and Terminal Gear for Towing Astern.
- 33 CFR 164.76 – Towline and Terminal Gear for Towing Alongside and Pushing Ahead.
- 33 CFR 164.82 – Maintenance, Failure, and Reporting.]

33 CFR §164.78 Navigation under way: Towing vessels.

(a) The owner, master, or operator of each vessel towing shall ensure that each person directing and controlling the movement of the vessel ó

(1) Understands the arrangement of the tow and the effects of maneuvering on the vessel towing and on the vessel, barge, or object being towed;

(2) Can fix the position of the vessel using installed navigational equipment, aids to navigation, geographic reference-points, and hydrographic contours;

(3) Does not fix the position of the vessel using buoys alone (Buoys are aids to navigation placed in approximate positions either to alert mariners to hazards to navigation or to indicate the orientation of a channel. They may not maintain exact charted positions, because strong or varying currents, heavy seas, ice, and collisions with vessels can move or sink them or set them adrift. Although they may corroborate a position fixed by other means, they cannot fix a position; however, if no other aids are available, buoys alone may establish an estimated position.);

(4) Evaluates the danger of each closing visual or radar contact;

(5) Knows and applies the variation and deviation, where a magnetic compass is fitted and where charts or maps have enough detail to enable this type of correction;

(6) Knows the speed and direction of the current, and the set, drift, and tidal state for the area to be transited;

(7) Proceeds at a safe speed taking into account the weather, visibility, density of traffic, draft of tow, possibility of wake damage, speed and direction of the current, and local speed-limits; and

(8) Monitors the voyage plan required by §164.80.

(b) The owner, master, or operator of each vessel towing shall ensure that the tests and inspections required by §164.80 are conducted and that the results are entered in the log or other record carried on board.

[CGD 94-020, 61 FR 35075, July 3, 1996, as amended by USCG-2000-6931, 68 FR 22610, Apr. 29, 2003; 69 FR 34068, June 18, 2004]

33 CFR §164.80 Tests, inspections, and voyage planning.

(a) The owner, master, or operator of each towing vessel of less than 1,600 GT shall ensure that the following tests and inspections of gear occur before the vessel embarks on a voyage of more than 24 hours or when each new master or operator assumes command:

(1) *Steering-systems.* A test of the steering-gear-control system; a test of the main steering gear from the alternative power supply, if installed; a verification of the rudder-angle indicator relative to the actual position of the rudder; and a visual inspection of the steering gear and its linkage.

(2) *Navigational equipment.* A test of all installed navigational equipment.

(3) *Communications.* Operation of all internal vessel control communications and vessel-control alarms, if installed.

(4) Lights. Operation of all navigational lights and all searchlights.

(5) Terminal gear. Visual inspection of tackle; of connections of bridle and towing pendant, if applicable; of chafing gear; and of the winch brake, if installed.

(6) Propulsion systems. Visual inspection of the spaces for main propulsion machinery, of machinery, and of devices for monitoring machinery.

(b) The owner, master, or operator of each towing vessel of 1,600 GT or more shall ensure that the following tests of equipment occur at the frequency required by §164.25 and that the following inspections of gear occur before the vessel embarks on a voyage of more than 24 hours or when each new master or operator assumes command:

(1) Navigational equipment. Tests of onboard equipment as required by §164.25.

(2) Terminal gear. Visual inspection of tackle; of connections of bridle and towing pendant, if applicable; of chafing gear; and of the winch brake, if installed.

[GCMA Comment: Refer to GCMA Report #R-234, Towing Vessel Regulation Logbooks.]

(c)(1) The voyage-planning requirements outlined in this section do not apply to you if your towing vessel is ó

(i) Used solely for any of the following services or any combination of these services ó

(A) Within a limited geographic area, such as a fleeting-area for barges or a commercial facility, and used for restricted service, such as making up or breaking up larger tows;

(B) For harbor-assist;

(C) For assistance towing as defined by 46 CFR 10.103;

(D) For response to emergency or pollution;

(ii) A public vessel that is both owned, or demise chartered, and operated by the United States Government or by a government of a foreign country; and that is not engaged in commercial service;

(iii) A foreign vessel engaged in innocent passage; or

(iv) Exempted by the Captain of the Port (COTP).

(2) If you think your towing vessel should be exempt from these voyage planning requirements for a specified route, you should submit a written request to the appropriate COTP. The COTP will provide you with a written response granting or denying your request.

(3) If any part of a towing vessel's intended voyage is seaward of the baseline (i.e., the shoreward boundary) of the territorial sea of the U.S., then the owner, master, or operator of the vessel, employed to tow a barge or barges, must ensure that the voyage with the barge or barges is planned, taking into account all pertinent information before the vessel embarks on the voyage. The master must check the planned route for proximity to hazards before the voyage begins. During a voyage, if a decision is made to deviate substantially from the planned route, then the master or mate must plan the new route before deviating from the planned route. The voyage plan must follow company policy and consider the following (related requirements noted in parentheses):

(i) Applicable information from nautical charts and publications (also see paragraph (b) of section 164.72), including Coast Pilot, Coast Guard Light List, and Coast Guard Local Notice to Mariners for the port of departure, all ports of call, and the destination;

(ii) Current and forecast weather, including visibility, wind, and sea state for the port of departure, all ports of call, and the destination (also see paragraphs (a)(7) of section 164.78 and (b) of section 164.82);

(iii) Data on tides and currents for the port of departure, all ports of call, and the destination, and the river stages and forecast, if appropriate;

(iv) Forward and after drafts of the barge or barges and under-keel and vertical clearances (air-gaps) for all bridges, ports, and berthing areas;

[GCMA Comment: Refer to GCMA Report #R-411, Rev. 4, on "overhead clearance accidents."]

(v) Pre-departure checklists;

(vi) Calculated speed and estimated time of arrival at proposed waypoints;

(vii) Communication contacts at any Vessel Traffic Services, bridges, and facilities, and any port-specific requirements for VHF radio;

(viii) Any master's or operator's standing orders detailing closest points of approach, special conditions, and critical maneuvers; and

(ix) Whether the towing vessel has sufficient power to control the tow under all foreseeable circumstances.

[GCMA Comment: Refer to and GCMA Report #R-340, Rev. 8, on oversize and overloaded tows and GCMA Report #R-400, Oversize and Overloaded Tows: Towing Vessel Horsepower.]

[CGD 94-020, 61 FR 35075, July 3, 1996, as amended by USCG-2000-6931, 68 FR 22610, Apr. 29, 2003; 69 FR 34068, June 18, 2004]