

# **U.S. Salvage and Marine Firefighting Regulations – Is Anyone Ensuring Compliance?**

## **A Study of Two Port Zones**

**Charleston, SC and Los Angeles–Long Beach, CA**



*Abstract: The requirement of the Salvage and Marine Firefighting regulations to plan in advance for a response to a shipboard fire in U.S. waters represents Congress' and the Coast Guard's efforts to prevent or mitigate oil pollution from such events. To create a compliant Vessel Response Plan, a vessel owner or operator must ensure that the plan makes proper personnel and equipment available to respond within the regulatory timeframes. This study analyzes the general framework and enforcement of the regulations, and the ability of vessel owners to draft compliant plans for the ports of Charleston and Los Angeles – Long Beach.*

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***EXCERPT***

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### **Author's Note**

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## Organization of This Report

This report synthesizes information gathered by the Panel and is divided into the following major sections:

**Executive Summary:** Report and offers a summary of the report's conclusions.

**Literature Review:** Outlines the authoritative written and online sources used to inform and guide the report, including its analysis and conclusions.

**Methodology:** Describes the disciplined approach used by the Panel to compare the legal requirements of the regulations to current state of compliance efforts in the regulated industry.

**Legal Analysis:** Examines the history and development of the Salvage and Marine Firefighting regulations, their legal effect, and the actions necessary to achieve compliance with them.

**Analysis of Marine Salvage and Firefighting Issues:** Reviews databases on vessel fires, explores the types of marine firefighting equipment and personnel currently in use and their effectiveness, including specific analyses of the ports of Charleston and Los Angeles–Long Beach.

**Conclusions:** Presents the Panel's major conclusions, both systemic and for the studied ports of Charleston, South Carolina, and Los Angeles–Long Beach, California.

**Bibliography:** Includes the sources used in preparing this report.

**Appendices:** These include vessel data relating to the ports of Charleston and Los Angeles–Long Beach, interview questions posed to towing vessel operators, case studies and biographical information on the authors.

This report reviews and analyzes the ability of the regulated industry to comply with the Salvage and Marine Firefighting regulations and to determine whether these regulatory mandates are being met within the ports of Charleston and Los Angeles–Long Beach specifically. The Panel anticipates that where areas of actual or potential weaknesses have been identified, improvements can be made to improve the response readiness of the system as a whole and prevent or mitigate future loss of life, property or environmental damage.

## Preface

On average, there are almost 79,000 visits of foreign flagged vessels to the waters of the United States annually<sup>1</sup> and each vessel must have a plan to deal with a salvage or marine firefighting incident. Fires are not uncommon at sea. In the U.S. National Transportation Safety Board's database of 242 maritime accidents since 1974, slightly over 20% involved fires.<sup>2</sup> A review of Port State Control data from the Tokyo and Paris MOUs, and the U.S. Coast Guard finds a similar pattern. Their records show that detainable fire safety deficiencies on ships account for 18%, 13%, and 22% respectively of all deficiencies found within their geographic areas of responsibility. Moreover, firefighting systems deficiencies are the largest single category of deficiencies found by these Port State Control authorities.<sup>3</sup>

Each vessel's plan must be approved by the U.S. Coast Guard. While Vessel Response Plans have been required in the past for oil spill response, the requirement to include salvage and marine firefighting planning in VRPs is a relatively recent change that came about when the final rules were issued for tank vessels and non-tank vessel in 2008 and 2013 respectively. Throughout the history of these recent rulemaking processes, questions remained about whether all ports in

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<sup>1</sup> U.S. Coast Guard, "'Port State Control in the United States,' Annual Reports for 2006-2016" (Washington, DC, 2017 2007), <http://www.dco.uscg.mil/Our-Organization/Assistant-Commandant-for-Prevention-Policy-CG-5P/Inspections-Compliance-CG-5PC-/Commercial-Vessel-Compliance/Foreign-Offshore-Compliance-Division/psc/>.

<sup>2</sup> National Transportation Safety Board, "Marine Accident Reports," Marine Accident Reports, September 24, 2017, <https://www.nts.gov/investigations/AccidentReports/Pages/marine.aspx>.

<sup>3</sup> Port State Control (PSC) is an internationally agreed upon regime for the inspection of foreign ships in other national ports by PSC inspectors. Tokyo MOU Secretariat, "Annual Report on Port State Control in the Asia-Pacific Region 2006-2016," <http://www.tokyo-mou.org/doc/>; Secretariat Paris Memorandum of Understanding on Port State Control, "Paris MOU Annual Reports 2008 – 2016; U.S. Coast Guard, "'Port State Control in the United States,' Annual Reports for 2006-2016" (Washington, DC, 2017 2007), <http://www.dco.uscg.mil/Our-Organization/Assistant-Commandant-for-Prevention-Policy-CG-5P/Inspections-Compliance-CG-5PC-/Commercial-Vessel-Compliance/Foreign-Offshore-Compliance-Division/psc/>.

the U.S. had the necessary SMFF capacity to meet planning requirements. Some critics questioned if response resource providers could get personnel and equipment on scene within the required timeframes listed in the regulations. This study examines that question, but is limited in examining marine firefighting capabilities in the ports of Charleston, South Carolina and Los Angeles–Long Beach, California. Specifically, the study sets out to determine if it is possible to draft a marine firefighting plan for either or both of the study ports that is compliant with the SMFF regulations.

The Panel, made up of five retired senior Coast Guard Officers having extensive marine safety experience, worked independently in formulating the findings and conclusions expressed in the report. The Panel relied on numerous primary and secondary sources including extensive interviews with subject matter experts and industry representatives, pertinent laws and federal regulations, reviews of vessel accident databases and authoritative writings including widely accepted industry standards, legal opinions and personal observations. The purpose of this study is to determine the current state of SMFF response readiness and ability to respond to a vessel fire within required planning timeframes, and draw conclusions based on the Panel’s findings.

## Purpose and Scope of the Report

This project was undertaken to assess the current state of readiness to respond to a marine fire emergency within the planning timeframes found in the Salvage and Marine Firefighting regulations.<sup>4</sup> For each vessel entering United States waters, the regulations identify a total of nineteen services<sup>5</sup> that must be included in a Vessel Response Plan.<sup>6</sup> These services include fifteen salvage activities and four marine firefighting (MFF) activities. The four MFF activities are:

1. Remote Assessment and Consultation
2. On-site Fire Assessment
3. External Firefighting teams
4. External vessel firefighting systems

*It is these four firefighting services that comprise the focus of this study.* The rationale for limiting the study to these four criteria is that a fire is among the most time critical of all situations that could be faced by vessel crews and responders. If not addressed quickly and effectively, the potential for loss of life, property damage, environmental harm, and damage to the Marine Transportation System can rise dramatically. Moreover, the level of difficulty in such a response can rise significantly when a fire occurs in either a nearshore area or an offshore area because there are often fewer resources available to quickly respond to these situations.

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<sup>4</sup> 33 C.F.R., Part 155—“Oil or Hazardous Material Pollution Prevention Regulations for Vessels” (U.S. Government Printing Office, Washington, DC, 2017).

<sup>5</sup> 33 C.F.R. Table § 155.4030(b), “Salvage and Marine Firefighting Services and Response Timeframes.”

<sup>6</sup> 33 C.F.R. § 155.1030. This section describes the general requirements for a salvage and marine firefighting response plan.

*The Geographic emphasis of this study is on the nearshore<sup>7</sup> and offshore areas<sup>8</sup> of the continental United States.* Response planning timeframes for nearshore and offshore areas are delineated in the regulations according to whether the areas are located within the continental United States (CONUS) or outside of the continental United States (OCONUS). For this study, the Panel limited its analysis to CONUS based nearshore and offshore responses. The Panel’s primary interest was to assess the capability and availability of resources that could realistically meet the planning timeframes contained in the regulations.

The emphasis on nearshore and offshore responses—rather than pier side and inland responses—is based on the assumption that incidents in these areas pose the greatest difficulty in marshalling the necessary resources for an efficient and effective response. This emphasis is not to minimize the challenges associated with ship fires occurring within a port. However, in-port fires have a far greater likelihood of garnering the necessary external resources, which may include municipal fire departments, fireboats, towing vessels and other vessels of opportunity. These same resources may not be realistically available in all nearshore and offshore responses due to factors such as seaworthiness, vessel manning, capacity, insurance requirements, and jurisdictional limitations.

Recent offshore and nearshore responses, notably the fires on board the cargo carrier *Grey Shark* and the ferry *Caribbean Fantasy*, (see Appendix 4, Case Studies) underscore the increased level of difficulty of responding to fires beyond the port in farther offshore regions.

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<sup>7</sup> 33 C.F.R. § 155.1020. “The Nearshore area means the area extending seaward 12 miles from the Boundary Lines defined in 46 CFR part 7, except in the Gulf of Mexico. In the Gulf of Mexico, a nearshore area is one extending seaward 12 miles from the line of demarcation (COLREG lines) as defined in §§80.740 through 80.850 of this chapter.”

<sup>8</sup> 33 C.F.R. § 155.4025 Definitions. “Offshore area means the area up to 38 nautical miles seaward of the outer boundary of the nearshore area.”

Although official investigative reports and findings are still pending in some of the cases listed in our case studies, enough is known to question whether appropriate external firefighting teams, external firefighting equipment and vessel resources were available to respond within the timeframes set by regulation.

*This study concentrated on resources available in two port areas to assess the strength of the firefighting response system that has developed since the regulations came into effect. These two port areas are Charleston, South Carolina, and Los Angeles–Long Beach, California.* The Panel recognized that each port is unique and that there are significant regional variations in response capabilities. Some Gulf Coast ports such as Houston and Port Fourchon, have an inherently greater pool of potential response vessel resources to call upon. This is due to the numerous, capable offshore supply vessels and air assets that daily service oil rigs and Mobile Offshore Drilling Units located in near and offshore areas. These assets can effectively serve in an MFF response capacity if needed. These same potential firefighting response units are not prevalent in the rest of the U.S., yet a fire emergency could occur anywhere off our nation’s coasts, and the governing regulations apply in all locations. From that vantage point, the selection of two port areas, one on the east coast and one on the west coast—both of which are commercially significant regionally and nationally—offers a useful perspective as to whether the regulations have improved the capability of the industry to respond to a shipboard fire.

While every incident is unique and requires flexibility of approach, the Oil Pollution Act of 1990 and the SMFF regulations mandate that a vessel owner or operator (also referred to as a

“planholder”<sup>9</sup>) is responsible for ensuring that appropriate resources can be brought to bear in a timely manner to assist, or at times, rescue and relieve shipboard personnel in combatting a marine fire.

***Pending regulatory requirements may require revision of Geographical-Specific Appendices to Vessel Response Plans.*** Another factor driving the need for this study is the coming into force of Subchapter M of Title 46, Code of Federal Regulations<sup>10</sup> which will require inspection and certification of towing vessels. These new regulations will likely specify limitations on a vessel's route, the number of passengers or persons in addition to the crew which may be carried, specify lifesaving device carriage requirements, and cause towing vessel stability to be evaluated. These new regulatory factors may constrain a potential firefighting vessel's availability for offshore responses. Because many towing vessels are included in GSAs as potential response resources, the new regulations may negatively affect their continued availability for nearshore and offshore work and thus reduce the fleet of available VOOs in each port.

At all times, the Panel remained cognizant of the timeframes in the regulations and its treatment by the Coast Guard as “planning criteria,” set forth in 33 CFR §155.4030(b), acknowledging that actual responses will be influenced by factors that are not known in advance. Weather conditions, for example, can greatly affect response times. The preamble to the SMFF

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<sup>9</sup> U.S. Coast Guard, “Nontank Vessel Response Plans and Other Response Plan Requirements; Final Rule,” *Federal Register* 78, no. 189 (September 30, 2013): 60106. “Planholder” is a term used in common parlance by the maritime industry to refer the vessel “owner” or “operator” (as defined in 33 CFR § 155.1020) responsible for submitting and maintaining a Vessel Response Plan on file with the Coast Guard.

<sup>10</sup> “Subchapter M” refers to U.S. Coast Guard regulations in Title 46, Code of Federal Regulations (Shipping) which will for the first time regulate most U.S. towing vessels to assure they meet certain standards of seaworthiness and safety management. The majority of Subchapter M requirements will enter into effect in July 2018.

regulations discusses this point but also conveys the expectation that a response within the planning timeframes should be reasonably possible.

## **Conclusions**

### **General Conclusions**

The overarching conclusion of the Panel is that marine firefighting efforts cannot be properly planned for within the allotted timeframes spelled out in the salvage and marine firefighting regulations, particularly in longer distance responses both nearshore and offshore. The Panel concludes that neither the intent, nor the regulatory mandates of the SMFF regulations are being met due to a lack of effective verification methodology and effort by the Coast Guard, response resource providers, and vessel owners and operators. The exact MFF capabilities in any given port are uncertain because they are not properly exercised, and verification of these capabilities has not been realistic enough to adequately prove them. The ineffective oversight of the development and maintenance of Geographic Specific Appendices (GSA's) calls into question their effectiveness as a planning tool. More concerning is the strong reliance on core GSA's by the Coast Guard in their determination as to whether thousands of VRP's meet the planning criteria of the SMFF regulations. The Panel also concludes that the verification processes used by the Coast Guard, resource providers, planholders, and others involved in the development of SMFF plans are inadequate. The system uses faulty assumptions and needs improvement.

While resource providers in the U.S. have substantial salvage and marine firefighting capability, the ability to make all the necessary equipment and personnel available and on site in the required COTP geographic locations and within the required planning timeframes is questionable at best. The reliance on non-contracted Vessels of Opportunity is highly problematic as these vessels are under no obligation to respond if called upon, yet they are critical to most SMFF plans. The Panel further concludes that without improving the verification process, ensuring the actual availability of response resources and personnel, and taking appropriate

enforcement action when necessary, there is no incentive for the system to improve and it will likely remain in a substandard state.

## **Specific Conclusions**

The following are more specific conclusions reached by the Panel, followed by a matrix evaluating the likelihood of accomplishing tasks necessary to meet the SMFF planning timeframes for marine fire-fighting criteria. The matrix is followed by an overall assessment of planholders ability to meet the timeframes in the various geographic areas:

### 1. Meeting the Timeframes

- a. Proximity to the port is a critical factor in meeting planning timeframes.
  - i. The ability to meet marine firefighting planning timeframes for distant nearshore area and offshore area responses, even under favorable conditions, is severely constrained using current arrangements and is highly doubtful.
  - ii. Since most vessels of opportunity are tugboats with average maximum speeds of around 10 knots, vessel transit times to distant reaches of the SMFF planning area using towing vessels can alone exceed the maximum regulatory response timeframes. This is true even without considering likely preparation delays before getting underway such as taking on fuel and stores, loading firefighting and other response equipment, and finding additional or properly licensed crewmembers.
  - iii. The most likely planning timeframes to be met are for responses occurring within a port due to the assistance of municipal firefighting resources, the close proximity of VRP listed response resources, and the desire of port users to avoid damage to the port.
  - iv. Vessel fires occurring in channels and other approaches to a port that threaten to impede commerce are likely to receive a timely response since it is in port

stakeholders' interest to keep the port open and because of the relatively close proximity to firefighting resources in the port.

v. Tugboats serving as vessels of opportunity can generally meet the response timeframes for nearby fires away from the dock, such as in channels or approaches, particularly if they have their own dedicated fire monitors and have not been delayed by pre-deployment preparations.

vi. Notwithstanding transit times, delays in taking on fuel and stores, as well as loading proper marine firefighting equipment and personnel onboard vessels of opportunity will likely be significant factors in causing planholders to fail to meet nearshore and offshore timeframe requirements.

vii. The additional burden of locating a properly licensed crew and a vessel capable of handling offshore sea states significantly reduces the fleet of available and capable vessels of opportunity, and sharply reduces the likelihood of a timely distant nearshore or offshore response.

b. Actual availability of capable equipment and personnel is critical.

i. Agreements between vessels of opportunity owners and resource providers are not contracts but non-binding letters of intent that leave response vessel availability completely at the discretion of the subcontractor. Such agreements fail to meet the definition of "contract or other approved means" as defined by the statute and regulation and seriously undermine the planning requirements as set out by Congress and the Coast Guard.

ii. The assumption that capable vessels of opportunity will always be available is questionable, and is highly dependent on the characteristics of the individual port. This is

subject to constant change due to ongoing activities in the port making availability very unpredictable.

iii. Given the limited number of vessels of opportunity with built-in external firefighting equipment capable of fighting large marine fires, employing such a vessel at the time of an incident will be very difficult—if not impossible depending on the port—without an actual, binding contract ensuring availability.

iv. The crews of vessels of opportunity are not typically trained in on site fire assessment (which requires knowledge of ship design and systems, cargoes, and stability) making it necessary to locate and transport to the scene a qualified assessor who may originate outside of the COTP zone. Note however, that the real distribution of fire assessors could not be accessed or assessed.

v. Trained marine firefighters are concentrated in a few locations in the country and will likely have to be transported to the locale in which the response is being staged, likely resulting in an added delay to the response. Even where response providers have trained a core group of marine firefighters on staff, they may need to be augmented by other trained marine firefighters.

vi. Professional firefighters report that they consider six qualified marine firefighters to be the bare minimum number of marine firefighters to form an effective team. Such a team could prove difficult to deliver on site within planning timeframes in some of the more remote ports, even in the continental U.S.

vii. Tug Crews are not trained to fight ship fires on another vessel and thus will almost always need to be augmented by properly trained marine firefighters.

## 2. Marine Firefighting

a. Training of municipal fire departments' marine firefighters varies considerably, and is often dependent upon federal grant funding.

b. In ports where municipal fire departments have entered into agreements to support private resource providers with their fire boats, these agreements are non-binding, "as available" agreements and municipal fire departments generally will not respond to incidents beyond their jurisdictions.

c. Municipal marine firefighting equipment capabilities vary greatly from city to city. Proper verification of the availability and capability of such resources is critical to planning and reliability.

d. Marine firefighting activity requires specialized insurance policies not typically maintained by vessel of opportunity owners and such policies will likely need to be negotiated at the time of the incident for those vessels owners that agree to respond. The lack of specialized insurance policies or the need to negotiate them can lead to an inability to respond or delay a response.

e. While portable fire pumps and firefighting foam are staged in ports around the country, most vessel of opportunity owners are not aware of the location and have not pre-planned how to load such equipment onto their vessels.

f. Loading specialized firefighting equipment on board a vessel of opportunity is rarely tested, adding to the uncertainty that issues such as available deck space, securing mechanisms, and vessel stability that might arise during a response.

g. Port state control data for the last ten years indicates that the greatest number of deficiencies found worldwide are found in firefighting systems, suggesting that greater

emphasis should be placed not only on prevention of marine fires but in planning for marine fires.

h. Although marine fires on large oceangoing vessels are within the capability of trained crew to suppress, marine casualty data bases nevertheless indicate that serious marine fires requiring external assistance do occur with sufficient regularity to justify a verifiable readiness posture.

### 3. Verification

a. The Coast Guard SMFF response resource verification process is inadequate and does not properly test whether equipment and personnel listed in Vessel Response Plans will be available and capable for an actual response should an incident occur.

b. Meaningful Coast Guard oversight of resource providers is lacking. There appears to be too much Coast Guard reliance on resource provider representations and a lack of an actual, practical verification of those representations.

c. There is reason to doubt that resource providers are adequately and effectively tracking availability of SMFF resources, resources which their planholder clients are relying on to fulfill the planning requirements of the SMFF regulations.

d. Vessel Response Plans have not been adequately or functionally tested against the required marine firefighting planning criteria timeframes established by the Coast Guard. Verifications rely too heavily on planholder and Service Provider representations regarding their response capability and preparedness.

e. The Coast Guard has mistakenly assumed that planholders will self-enforce MFF readiness with available and capable resources that can meet required planning criteria without a proper verification methodology. The current approach does not verify preparedness.

f. Inaccuracies in Geographic Specific Appendices regarding SMFF response resources frustrate Coast Guard efforts to accurately review and approve or disapprove Vessel Response Plans.

g. It appears that Geographic Specific Appendices are not accurately updated, particularly with regard to vessels of opportunity which often depart the Captain of the Port zone with no notification to the cognizant COTP.

h. It appears that suitable exercises are not being performed in any of the covered geographic areas, particularly in the nearshore and offshore areas. Local exercises to test capabilities and coordination do occur in some ports, but the approach is inconsistent among most ports and non-existent in some.

i. Some COTPs have taken the initiative to include fire response as part of their port level contingency preparedness exercises. This effort is commendable, especially in the absence of specific program guidance along these lines. A broader, systematic, nationwide effort which includes vessel fire scenarios would strengthen the Coast Guard's VRP validation effort.

j. The recently revised National Preparedness for Response Exercise Program guidelines lack specificity to ensure that the SMFF portions of Vessel Response Plans are properly tested.

k. The Coast Guard produced no evidence that they have cleared deficiencies in response resources for which waivers were issued, during those periods when waivers were authorized. Now that all of the waiver periods have expired, the Coast Guard should confirm, or reconfirm and document that all of the deficiencies associated with waivers have been corrected.

l. Based on our research, it appears that no enforcement action has been taken to date by the Coast Guard against any planholder, other than to deny or return a VRP for modification during the approval process. The system would benefit from consistent enforcement by the Coast Guard, transparency of locally available resources, verification results, and transparency of enforcement actions.

m. Because Geographic Specific Appendices have been determined by the Coast Guard not to be releasable to the public under the Freedom of Information Act, and no Coast Guard verification report has been released to the public, it is impossible for the public to learn and understand the current state of SMFF readiness and regulatory compliance.

#### 4. Ports of Charleston and Los Angeles–Long Beach

The Panel concludes that it is highly unlikely that a fully compliant SMFF response plan can be written for the Port of Charleston or the Port of Los Angeles–Long Beach due to response resource constraints, and the associated inability to meet the planning criteria timeframes for a marine firefighting response. For details, see Table 2 below.