UNITED STATES COAST GUARD

REPORT OF THE DISTRICT FORMAL INVESTIGATION INTO THE SMALL PASSENGER VESSEL SPIRIT OF BOSTON (O.N. 954835) FIRE IN BOSTON HARBOR, BOSTON, MASSACHUSETTS ON MARCH 24, 2023

MISLE ACTIVITY NUMBER 7656694

U.S. Department of Homeland Security

United States Coast Guard

Commandant
United States Coast Guard

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16732/IIA # 7656694
03 Dec 2025

FIRE ABOARD THE SMALL PASSENGER VESSEL SPIRIT OF BOSTON (O.N. 954835) WHILE MOORED AT THE COMMONWEALTH WHARF IN BOSTON HARBOR, MASSACHUSETTS ON MARCH 24, 2023

ACTION BY THE COMMANDANT

The record and the report of the investigation completed for the subject casualty have been reviewed. The record and the report, including the findings of fact, analysis, conclusions, and recommendations are approved subject to the following comments. This marine casualty investigation is closed.

ACTION ON RECOMMENDATIONS

Recommendation 1: It is recommended that the Commandant implement Safety Management System (SMS) regulations for all Title 46 Code of Federal Regulation (CFR) Subchapter K vessels, including "existing vessels."

> **Action**: I partially concur with this recommendation. Following the fire aboard the small passenger vessel (SPV) CONCEPTION in 2019, the Elijah Cummings Coast Guard Authorization Act of 2020 (Pub. L. 116-283, Division G, 134 Stat. 463) required the United States Coast Guard (USCG) to include certain Subchapter K vessels in the SMS regulations already required by the Coast Guard Authorization Act of 2010 (Pub. L. 111-281, § 610, 124 Stat. 2969). To meet those statutory requirements, the USCG is developing a rule that would require certain Subchapter K vessels to develop and maintain a SMS.
>
> The relevant legislation mandated, at a minimum, that the new regulations apply to covered small passenger vessels (CSPVs). The statute defines a CSPV as a small passenger vessel (as defined in Title 46 United States Code (USC) Section 2101), except a ferry or a fishing vessel, that has overnight accommodations for passengers or that operates on a coastwise or oceans route. The definition includes both "new vessels" and "existing vessels" as those terms are defined in Title 46 CFR § 114.400.
>
> The USCG supports the statutory definition of CSPV and its associated impact on the applicability of the rulemakings referenced above. The SPIRIT OF BOSTON is not included in the population of vessels that would have a required SMS under the forthcoming regulations. While every vessel would benefit from proactive maintenance, operation-specific procedures, and an audit scheme that is entailed in an SMS, the USCG does not believe this incident and the findings from the investigation provide sufficient justification to expand the scope of the ongoing SMS regulatory project at this time.

Recommendation 2: It is recommended that the Commandant implement new regulations under 46 CFR Subchapter T (T-L vessels) and Subchapter K to eliminate open flames onboard vessels and if carried for any reason require those vessels that carry onboard flammable liquids to store those flammable liquids in

type approved flammable liquid storage lockers. Examples of those flammable liquids are heating fuels for chaffing dishes, table candles with liquid fuel, paint thinner, acetone, charcoal lighter, and other similar products.

> **Action**: I do not concur with this recommendation. The USCG does not support updating the SPV regulations to "eliminate" the use of open flames nor require prescriptive blanket requirements for the storage of flammable liquids. The provisions in 46 CFR § 122.100 require that vessels such as the SPIRIT OF BOSTON be operated in such a way as to afford adequate protection against hazards that might endanger the vessel and the people being transported. In this case, the vessel's personnel failed to recognize the danger of using open flames and failed to adequately protect the vessel as the regulations already require. New regulations prohibiting the use of open flames on all Subchapter K (including "new vessels" and "existing vessels") would impose an undue burden on the dinner cruise industry at large, which safely handles open flames, including solid alcohol fuel, on a daily basis.

Recommendation 3: It is recommended that the Commandant clarify the definition "safety sensitive" in regulatory language to precisely define which type of crew functions are in fact safety sensitive. The USCG Deputy Commandant for Operations (DCO) website states that "Safety Sensitive Position: Is any position (billet) aboard a vessel, that requires the person filling that position to perform one or more safety sensitive duties or operation of a vessel on either a routine or emergency only basis." In the case of the SPIRIT OF BOSTON fire, the senior company person aboard would make life or death decisions to fight the fire or evacuate the vessel. However, based on its interpretation of the definition of the term, the company did not classify the senior person aboard as one serving in a safety sensitive position.

> **Action**: I do not concur with this recommendation. The term "safety-sensitive" is used in USCG regulations and policy only in reference to the positions on a vessel which are subject to random drug testing requirements in accordance with 46 CFR § 16. A more relevant determination would have been whether the individuals left on board after the primary crewmembers departed were themselves capable of properly addressing an emergency situation. Based on the findings of the investigation, it appears the master of the vessel, who was ultimately responsible for ensuring each member of the crew was familiar with his or her duties in case of a fire in accordance with 46 CFR § 122.420, failed to ensure the vessel remained adequately crewed at the end of the excursion when the fire occurred.

Recommendation 4: It is recommended that the Commandant require that all personnel employed onboard all certificated vessels to have completed an appropriately scaled, USCG approved firefighting course. Unlike deep draft vessels over 100 gross tons (GT), personnel onboard smaller vessels are not required to obtain a baseline merchant mariner credential which would include certain mandated courses, including firefighting. This poses a national threat to the safety of the general public and the USCG must find ways to include this large amount of non-credentialed crews in the baseline safety requirements that the rest of the merchant marine are required to obtain. This has been witnessed several times over in past fires and accidents onboard other similar type vessels under 100 GT. This entire fire and subsequent significant damage to the vessel may have been prevented if nationally mandated firefighting training was obtained by the remaining employees onboard the vessel and not left up to the company to assume they have trained their staff. The Office of Standards Evaluation and Development has published a final rule "Towing Vessel Firefighting Training, 88 Federal Register 67966" that allows towing vessel operators to take scaled back training that reflects the capabilities of the equipment onboard the vessel they are working on. The small passenger vessel fleet must duplicate this effort.

> **Action**: I concur with the intent of this recommendation. Current regulations obligate the vessel owner, charterer, master, or managing operator to instruct each crew member as to the

duties that the crew member is expected to perform in an emergency. The USCG recently took further regulatory action to improve firefighting training on SPVs. On March 28, 2022, new regulations took effect that require companies operating CSPVs to include specific items in the curriculum of the training program. Title 46 CFR § 122.420(b) requires that the crew training program must address firefighting proficiency and include training in the use and location of firefighting equipment and general firefighting knowledge, drills, and emergency egress training. While these new provisions are not applicable to the SPIRIT OF BOSTON, the USCG has implemented the requirements for the vessels deemed to be the highest risk, i.e., those with overnight accommodations and that operate on oceans or coastwise routes. All SPVs that fall outside of the CSPV definition, including the SPIRIT OF BOSTON, would also benefit from a more robust firefighting training program and the USCG encourages those SPVs to voluntarily comply with the new firefighting regulations.

Recommendation 5: It is recommended that the Commandant conduct a review of HORNBLOWER CRUISES AND EVENTS, LLC and their subsidiaries to determine the adequacy of their fire prevention training and organizational ability to maintain safe operations. This review should include, but not be limited to, an examination of all casualty reports involving fires onboard their passenger vessels and any damage surveys that were conducted due to a lack of maintenance, training, or company oversight. This review should be used to identify organizational safety gaps within the company and between ports of operation.

Action: I concur with the intent of this recommendation. Following the fires on the SPIRIT OF NORFOLK and the SPIRIT OF BOSTON, the USCG published Marine Safety Information Bulletin (MSIB) 05-23, "Fire Safety on Small Passenger Vessels," and initiated a concentrated inspection campaign focused on small passenger vessels carrying more than 100 passengers that operated on rivers; lakes, bays, and sounds; and limited coastwise routes and that were constructed prior to 1996. MSIB 05-23 encouraged SPV owners to conduct an assessment of their vessels' fire safety posture and provided a checklist for doing so. The concentrated inspection campaign had focus areas including reviewing emergency duties with the entire crew, reviewing the frequency and content of crew training and drills, ensuring all means of escape are unobstructed and well-marked, ensuring all firefighting and fire protection equipment is aboard and operational, verifying that flammable and combustible materials are not stored near heat sources, and ensuring all written procedures, checklists, etc. are accurate and used by the crew. In this concentrated inspection campaign, all of the vessels of similar passenger count and route to the SPIRIT OF BOSTON were inspected and evaluated, which included 331 vessels and most of the Hornblower fleet. While a specific review of Hornblower vessels' marine casualty and deficiency histories may provide a benefit, the USCG elected instead to conduct a review of the entire fleet of similar vessels, renewing awareness to the dangers of fire on vessels and improving safety in the SPV industry as a whole.

Recommendation 6: It is recommended that the Commandant require all certificated passenger vessel operators under Subchapter K, to ensure they designate one qualified and trained person, in vessel specific emergency response, to remain onboard the vessel while not underway until all the non-marine crew and contractors have departed the vessel. This person should be trained to an acceptable standard to respond to vessel emergencies to reduce the risks from emergencies such as fire, medical, flooding, and other contingencies outlined in a Vessel Emergency Response Plan and to ensure the safe evacuation of the vessel, if necessary.

Action: I do not concur with this recommendation. The investigation found that once aware of the fire, the Senior Restaurant Manager directed the 18 staff aboard the vessel to evacuate,

while simultaneously, the Associate Restaurant Manager called 911 and reported the fire. All personnel aboard the SPIRIT OF BOSTON at the time of the incident were safely evacuated. Although damage was sustained to the vessel, the actions of the managers ensured no one was injured or killed. The facts of the case do not support the conclusion that the presence of a single "company employee trained in emergency response procedures" would have prevented the serious marine casualty from occurring or reduced the amount of damage sustained by the vessel. It is important to note that 46 CFR § 122.100 requires that the vessel be operated in such a manner as to afford adequate precaution against hazards that might endanger the vessel. To that end, and in accordance with 46 CFR § 122.420, the master of the vessel must ensure each member of the crew is instructed as to the duties they are expected to perform in an emergency, which should include firefighting instruction.

Administrative Recommendation 1: It is recommended that the Commandant strongly urge the Passenger Vessel Association (PVA), a quality partner of the USCG, to leverage the lessons learned and safety recommendations from this investigation to support voluntarily implementation of enhanced safety protocols and training by their members beyond the minimum standards found in the CFR. The USCG relies on partnerships with trade organizations to improve the industry and communicate the need for change with their input. The majority of our nation's passenger vessel fleet are members and the PVA has the requisite expertise to help lead the initiatives.

Action: I concur with this recommendation. A copy of this investigation and this final action memorandum will be provided to the PVA for their consideration and potential action.

W. R. ARGUIN
Rear Admiral, U.S. Coast Guard
Assistant Commandant for Prevention (CG-5P)

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16732
13 June 2025

SMALL PASSENGER VESSEL SPIRIT OF BOSTON (O.N. 954835)
FIRE IN BOSTON HARBOR, BOSTON, MASSACHUSETTS
ON MARCH 24, 2023

ENDORSEMENT BY THE COMMANDER,
FIRST COAST GUARD DISTRICT

The record and the Report of Investigation (ROI) for the subject casualty have been reviewed by my office and we do not concur with the investigative analysis in section 5.10.2, nor with the conclusions in sections 6.1.2, 6.1.9, 6.1.14, and 6.1.15. In these sections, the investigation team concluded that the hospitality staff failed to take action to combat and/or prevent the spread of the fire onboard the vessel. However, based on the facts of the case, my office believes that the hospitality crew made a reasonable decision to evacuate the vessel to ensure the safety of all persons onboard given the minimal shipboard emergency training they received and the fact that the trained marine crew had already departed the vessel.

Therefore, we disagree with the presupposition by the investigation team that the hospitality staff could have successfully extinguished the fire and evacuated everyone safely had they prioritized fighting the fire over evacuation of the vessel.

The findings of fact and recommendations are approved subject to the following comments. It is recommended that this marine casualty investigation be closed.

ENDORSEMENT/ACTION ON SAFETY RECOMMENDATIONS

Safety Recommendation 1 – It is recommended that the Commandant implement Safety Management Systems (SMS) regulations for all Title 46 C.F.R. Subchapter K vessels, including "existing vessels."

> **Endorsement:** Concur; My office agrees that Commandant should implement SMS regulations for all 46 CFR Subchapter K vessels, including "existing vessels." Vessels considered to be "grandfathered" after the codification and implementation of 46 C.F.R. Subchapter K are not required to have SMS. More uniformity in regulations and inspections of all vessels that fall under 46 C.F.R. Subchapter K would create a safer seafaring environment. Furthermore, the requirement for SMS would reduce the likelihood of marine casualties and improve response efforts should a casualty occur.

Safety Recommendation 2 - It is recommended that Commandant implement new regulations under 46 CFR Subchapter T (including older T-L vessels) and Subchapter K to eliminate open flames onboard vessels, and if carried for any reason require those vessels that carry onboard flammable liquids to store them in type-approved flammable liquid storage lockers. Examples of flammable liquids include heating fuels for chaffing dishes, table candles with liquid fuel, paint

thinner, acetone, charcoal lighter and other similar products.

> **Endorsement:** Partially Concur; My office agrees in part that Commandant should implement new regulations under 46 CFR Subchapter T (including older T-L vessels) and Subchapter K. My office does not agree that the new regulations should altogether eliminate the ability to utilize open flames onboard however and instead recommends vessels that choose to utilize open flames be required to identify proper handling and storage procedures within their SMS as recommended in Safety Recommendation 1. New regulations should also require type approved flammable liquid storage lockers.

Safety Recommendation 3 - It is recommended that Commandant clarify the definition "safety sensitive" in regulatory language to precisely define which type of crew functions are in fact safety sensitive. The Coast Guard's Deputy Commandant for Operations (DCO) website states that "*Safety Sensitive Position: Is any position (billet) aboard a vessel, that requires the person filling that position to perform one or more safety sensitive duties or operation of a vessel on either a routine or emergency only basis."* In the case of the *Spirit of Boston* fire, the senior company person aboard would make life or death decisions, to fight the fire or evacuate the vessel. The company did not classify that position as being in a safety sensitive position based on the company interpretation of the definition of safety sensitive position.

> **Endorsement:** Partially Concur; My office agrees in part that clarification by Commandant of the "safety sensitive" regulatory definition may be necessary. This case highlights that restaurant personnel can play a key role in ensuring the safety onboard the vessel. While the Deputy Commandant for Operations (DCO) may select to further clarify the definition, nothing precludes the Operator from identifying restaurant personnel as Safety Sensitive Positions and providing appropriate training. The extent of the fire aboard the *SPIRIT OF BOSTON* may have been significantly lessened had the restaurant crew been comfortable with the use of fire-fighting equipment. This investigation identified that had there been marine crewmembers onboard at the time of the fire, then the casualty response may have been quicker and more efficient. It is my office's opinion that crewmember positions should be clearly identified in company SMS and appropriate training should be conducted for each position responsibility.

Safety Recommendation 4 - It is recommended that Commandant require that all personnel employed onboard all certificated vessels are required to have completed an appropriately scaled Coast Guard approved firefighting course. Unlike deep draft vessels over 100 GT, personnel onboard smaller vessels are not required to obtain a baseline merchant mariner credential which would include certain mandated courses, including firefighting. This poses a national threat to the safety of the general public and the Coast Guard must find ways to include this large amount of non-credentialed crews in the baseline safety requirements that the rest of the merchant marine are required to obtain. This has been witnessed several times over past fires and accidents onboard other similar type vessels under 100 GT. This entire fire and subsequent significant damage to the vessel may have been prevented if nationally mandated firefighting training was obtained by the remaining employees onboard the vessel and not left up to the company to assume they have trained their staff. CG-REG has published a final rule "Towing Vessel Firefighting Training, 88 FR 67966" that allows towing vessel operators to take scaled back training that reflects the capabilities of the equipment onboard the vessel they are working on. The small passenger vessel fleet must duplicate this effort.

Endorsement: Concur; My office agrees that Commandant should require that all personnel employed onboard all certificated vessels complete an appropriately scaled Coast Guard approved firefighting course. This case highlights that restaurant personnel can play a key role in performing basic firefighting and fire-mitigation measures onboard a commercial vessel. This population of the waterborne workforce are not required to meet rigorous training standards for employment at sea, contrary to what is required of those with merchant mariner credentials. Safety training for credentialed mariners exists to mitigate life-threatening hazards at sea where margins of error are decreased significantly, as opposed to land-based emergencies. The extent of fire aboard the *SPIRIT OF BOSTON* may have been significantly lessened if the company had made marginal efforts to periodically train all its employees in basic firefighting and fire-mitigation skills. Fires aboard vessels consistently prove to be some of the most harrowing and damaging catastrophes, which oftentimes become tremendously difficult to fight as the fire worsens. Requirements in basic firefighting skills for any person working aboard a vessel will undoubtedly reduce death, injuries, and damage at sea while also lessening threats to the local population as well as danger to piers and/or local infrastructure.

Safety Recommendation 5 – It is recommended that Commandant conduct a review of HORNBLOWER CRUISES AND EVENTS, LLC and their subsidiaries to determine the adequacy of their fire prevention training and organizational ability to maintain safe operations. This review should include, but not be limited to, an examination of all casualty reports involving fires onboard their passenger vessels and any damage surveys that were conducted due to a lack of maintenance, training or company oversight. This review should be used to identify organizational safety gaps within the company and between ports of operation.

Endorsement: Concur; My office agrees that Commandant should conduct a review of *HORNBLOWER CRUISES AND EVENTS, LLC* and their subsidiaries to determine the adequacy of their fire prevention training and organizational ability to maintain safe operations. *HORNBLOWER CRUISES AND EVENTS, LLC* is one of the country's largest and most-established companies in the waterborne passenger transportation industry. It operates dozens of vessels in many of the United States' largest ports and seaside cities. It is reasonable to expect that a company with such an expansive footprint in the maritime industry in the United States should meet, or exceed, basic safety standards through its organizational structure, company policies, and operating procedures. Threats to the safety of the population and/or the economic vitality of the country through its waterways is unacceptable, especially if such hazards could be mitigated by seemingly simple organizational changes. A review of the company's past three marine casualties, training requirements, and maintenance procedures should identify any gaps in safety.

Safety Recommendation 6 – It is recommended that Commandant require all certificated passenger vessel operators under Subchapter K, to ensure they designate one qualified and trained person, in vessel specific emergency response, to remain onboard the vessel while not underway until all the non-marine crew and contractors have departed the vessel. This person should be trained to an acceptable standard to respond to vessel emergencies to reduce the risks from emergencies such as fire, medical, flooding, and other contingencies outlined in a Vessel Emergency Response Plan and to ensure the safe evacuation of the vessel, if necessary.

Endorsement: Concur; My office agrees that that Commandant require all certificated passenger vessel operators under Subchapter K, to ensure they designate one qualified and trained person, in vessel specific emergency response, to remain onboard the vessel while not underway until all the non-marine crew and contractors have departed the vessel. A trained leader during a dangerous crisis can substantially reduce the risk of injury or death while also preserving property. This investigation highlights that even small errors can have compounding consequences. Such risks do not dissipate when a vessel moors and is not underway. As long as passengers or workers are present on a certificated passenger vessel under the safety purview of the U.S. Coast Guard through codified regulations, there should be a clearly identified company employee or designee who has been trained in emergency response procedures for that specific vessel.

ENDORSEMENT/ACTION ON ADMINISTRATIVE RECOMMENDATIONS

Administrative Recommendation 1 – It is recommended that Commandant strongly urge the Passenger Vessel Association (PVA), a quality partner of the Coast Guard, leverage the lessons learned and safety recommendations from this investigation to support voluntarily implementation of enhanced safety protocols and training by their members beyond the minimum standards found in the Code of Federal Regulations. The Coast Guard relies on partnerships with trade organizations to improve the industry and communicate need for change with their input. The majority of our nation's passenger vessel fleet are members and the PVA has the requisite expertise to help lead the initiatives.

Endorsement: Concur; My office agrees that Commandant should strongly urge the Passenger Vessel Association (PVA) to leverage the lessons learned and safety recommendations from this investigation to support voluntarily implementation of enhanced safety protocols and training by their members beyond the minimum standards found in the CFR. Utilization of trusted partnerships in the maritime industry can help the U.S. Coast Guard enhance its safety initiatives. Collaboration with the PVA at the highest levels of the Coast Guard could also help establish a program(s) of voluntary compliance regarding heightened safety procedures beyond the current statutory regulations. Innovations in safety protocols will undoubtedly benefit the population of seagoing passengers while also ensuring the greatest mitigation in risk to waterways.

[redacted]

M. E. PLATT
Rear Admiral, U.S. Coast Guard
Commander, First Coast Guard District

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16732
27 Mar 2023

MEMORANDUM

From: John W. Mauger, RADM
CGD ONE (d)

To: Mason C. Wilcox, CDR
CGD ONE (dpi)

Subj: FORMAL MARINE CASUALTY INVESTIGATION CONCERNING A FIRE ONBOARD THE PASSENGER VESSEL (P/V) SPIRIT OF BOSTON (O.N. 954835) ON 24 MARCH 2023

Ref: (a) Title 46 United States Code, Chapter 63
(b) Title 46 Code of Federal Regulations, Part 4
(c) Marine Safety Manual, Volume V; COMDTINST M16000.10A
(d) CG-545 Policy Letter 5-10

1. Pursuant to the authority contained in references (a) and (b), you are to convene a formal investigation for the marine casualty of the P/V SPIRIT OF BOSTON (O.N. 954835) that occurred on March 24, 2023. In conducting your investigation, you shall follow as closely as possible the policy guidance and operational procedures for Coast Guard Marine Investigations Programs, as found in reference (c).

2. I have assigned the following persons to assist you with your investigation. For purposes of this investigation, the below persons are all designated as investigating officers as defined under reference (b).

- [redacted], USCG, Assistant Investigating Officer
- [redacted], USCG, Recorder
- [redacted], USCG, Legal Counsel
- [redacted], USCG, Subject Matter Expert

3. Upon completion of the investigation, you will issue a Report of Investigation (ROI) to me with the collected evidence, the established facts, conclusions, and recommendation. Conclusions and recommendations concerning commendatory actions or misconduct that would warrant further inquiry shall be referred to me by separate correspondence for consideration and action as appropriate. A weekly summary of significant events shall be transmitted to CGD ONE (dp) while the investigation is in formal session.

4. You will complete and submit your investigation report to me by October 23, 2023. If this deadline cannot be met, you shall submit a written explanation for the delay and notice of the

expected completion date. You are highly encouraged to submit any interim recommendations intended to prevent similar causalities, if appropriate, at any point in your investigation.

5. The National Transportation Safety Board (NTSB) is also charged with the responsibility of determining the cause or probable cause of this casualty by the Independent Safety Board Act of 1974 (49 U.S.C. § 1901, et. seq.) and has designated Mr. [redacted] to participate in this investigation. Mr. [redacted] may make recommendations regarding the scope of the inquiry, may identify and examine witnesses, and or submit or request additional evidence.

6. CGD ONE (dpi) will furnish such funding and technical assistance as may be required by the investigation when deemed appropriate and within the requirements for the scope of the work.

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Copy: COMDT (CG-INV)
LANTAREA
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CG SECTOR Boston
Investigations NCOE

TABLE OF CONTENTS

U.S. Department of Homeland Security
United States Coast Guard

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16732
January 16, 2025

SMALL PASSENGER VESSEL SPIRIT OF BOSTON (O.N. 954835)
FIRE IN BOSTON HARBOR, BOSTON, MASSACHUSETTS ON
MARCH 24, 2023

EXECUTIVE SUMMARY

On the evening of March 24, 2023, the small passenger vessel *Spirit of Boston* was moored on the west side of the Commonwealth Wharf in Boston Harbor after an evening dinner excursion around Boston Harbor. Nearly 400 passengers departed the vessel after the evening cruise at approximately 10:00 p.m. After securing the vessel to the pier, the marine crew departed at approximately 10:30 p.m., followed by the galley crew a few minutes later. The hospitality staff, comprised of managers, servers, and server's assistants remained onboard, cleaning up the vessel and readying the vessel for the next day's activities. At this time, there were two disc jockeys, who were independent contractors, that remained aboard putting away their equipment before departing. At approximately 10:52 p.m., members of the hospitality staff were in the vicinity of the wait station, forward of the galley area, on the port side of the main deck, when they discovered smoke and fire in the aft bulkhead[1] area of the wait station. The initial location of the fire was in the aft area of the wait station, on the deck, under two carts which carried drinking glasses in plastic racks. Arrayed along that bulkhead were the rolling glass carts on wheels, one tall plastic trash receptacle, and a laundry bin. There were three eyewitnesses to the initial fire, including the Senior Restaurant Manager. One saw sparks coming out from the bulkhead, approximately 20 inches off the deck; another of the three witnesses stated they saw a single spark coming out from the rolling glass cart. The final eyewitness described a "snake like" ribbon of fire on the deck, no more than two to three feet in length and two to three inches in height, with a width of no more than three inches. Another hospitality staff member reported hearing a sound similar to escaping compressed gas, while other witnesses heard a popping sound, like the sound of popcorn popping. One of the witnesses to the fire mentioned the possibility of using a fire extinguisher, however, there were no attempts to extinguish the fire. A fire extinguisher and fire blanket were in close proximity to the fire.

Once aware of the fire in the wait station area, the Senior Restaurant Manager verbally directed the 16 hospitality staff onboard to evacuate the vessel onto the dock. Simultaneously, the Associate Restaurant Manager called 911 and reported the fire to the Boston 911 dispatcher. The two disc jockeys onboard evacuated the vessel at the same time as the staff. All the personnel that were aboard the *Spirit of Boston* safely evacuated the vessel to the dock. Shortly after evacuating the vessel, one disc jockey

[1] Bulkhead is a wall in nautical vernacular, in this case a partial aluminum partition between the cold prep area and the wait station on the port side of the main deck.

went back on board the vessel to retrieve his equipment and one server went back on board and returned to the dock with a life jacket on.

Boston Fire Department (FD) received the alarm at 11:05 p.m. The nearest Boston Fire Department Station, Engine 10, was located approximately less than one mile from the vessel. Numerous Boston FD assets would arrive at the vessel, including a marine firefighting vessel. The dispatch call was initially classed as a One-Alarm fire and at approximately 11:19 p.m., the fire department elevated the fire response to two alarms per department protocol. At 11:39 p.m., the fire departments reported the fire was knocked down and the overhaul of the fire scene commenced. These activities were related to looking for lingering hot spots and ensuring the fire was extinguished. At 1:06 a.m. on March 25, 2023, the FD reported the fire extinguished and all units to depart the location. The vessel suffered extensive fire damage and was taken out of service for lengthy repairs.

The cause of the casualty was determined to be a fire in the aft section of the main deck wait station, most likely started when a heating fuel canister that was still burning was inadvertently dropped on the deck and rolled under an obstruction and was left on the deck below combustible material to begin the fire cycle. The contributing factors that led to the fire, were the lack of safe handling and storage procedures for flammable liquids. Additionally, there was a lack of action by vessel personnel to extinguish a small fire on the deck with a nearby fire extinguisher or fire blanket that was close at hand, contributing to the spread of the fire. Company policy provides fire safety training for all vessel personnel, but in this incident, absolutely no firefighting action was taken by any employee of the vessel or company.

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January 16, 2025

SMALL PASSENGER VESSEL SPIRIT OF BOSTON (O.N. 954835)
FIRE IN BOSTON HARBOR, BOSTON, MASSACHUSETTS ON
MARCH 24, 2023

DISTRICT FORMAL INVESTIGATION REPORT

1. Preliminary Statement

1.1. A First District Formal Investigation team was convened on March 27, 2023. The team consisted of CDR Mason C. Wilcox (Lead Investigating Officer), LCDR [redacted] (Assistant Investigating Officer), LCDR [redacted] (Subject Matter Expert), Mr. [redacted] (Recorder), and LCDR [redacted] (Legal Advisor). The purpose of the investigation was to explore all circumstances surrounding the fire onboard the *Spirit of Boston*. The investigation team was tasked with securing evidence, establishing facts, conducting analysis, determining conclusions, and identifying preventative recommendations.

1.2. The investigation team conducted a comprehensive marine casualty investigation, and this report is submitted in accordance with Title 46, Code of Federal Regulations (CFR), Subpart 4.07, and under the authority of Title 46, United States Code (USC) Chapter 63.

1.3. The National Transportation Safety Board (NTSB) conducted a parallel safety investigation. In accordance with the joint NTSB and USCG Memorandum of Understanding (MOU), the USCG was designated as the lead federal investigative agency. At the conclusion of the fact-finding phase of the investigation, the NTSB conducted their own separate analysis of the facts. The NTSB will make conclusions and recommendations based upon their analysis.

1.4. In accordance with the Coast Guard and Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF) Memorandum of Understanding (MOU), personnel from the ATF conducted an exhaustive examination of the fire and fire path to determine cause and origin of the fire, if possible. The ATF conducted field work at the vessel and later laboratory analysis of potential fuel and ignition sources at their lab in Maryland to support the cause and origin report.

1.5. The ATF Origin and Cause Report and the accompanying ATF laboratory testing report is included in the evidence of this investigation as CG Exhibit 005. The investigation asked for a four-month extension on September 26, 2023, based on CG-INV Policy Letter 02-22, dated 07 November 2022, allowing more time for the investigation if waiting on such a report. Based on a backlog of fire investigation work at the ATF, this critical documentation of the ATF work

relating to the origin and cause of the fire had not been delivered to the Coast Guard or NTSB investigation teams and that extended the submission date of this report. The ATF Origin and Cause Report and accompanying documents were provided to the Coast Guard on July 20, 2024. The Coast Guard is grateful to the ATF personnel who participated in this investigation, tested fire scenarios, and developed this exhaustive report.

1.6. The Lead Investigating Officer designated the operating company, HORNBLOWER CRUISES AND EVENTS, LLC, as owner of the P/V SPIRIT OF BOSTON, as a party in interest as defined by 46 United States Code (USC) § 6303 and 46 Code of Federal Regulations (CFR) § 4.03-10.

1.7. Coast Guard and NTSB investigators conducted 22 initial witness interviews and an additional five interviews under oath and gathered relevant physical and documentary evidence. No public hearing was held for this formal investigation.

1.8. Federal Regulation 46 CFR 4.07-1 provides the scope of a marine casualty investigation convened by a District Commander. The investigation is tasked, by law, with determining as closely as possible, the following factors: the cause of the accident, whether there is evidence that any failure or material was involved or contributed to the casualty, whether there is evidence that any misconduct, inattention to duty, negligence or willful violation of the law, whether there is evidence that any Coast Guard personnel caused or contributed to the cause of the casualty, or whether the accident shall be further investigated by a Marine Board of Investigation (MBI). These factors do not artificially limit the investigation to specifically the events on the day of the incident.

1.9. All times contained within this report are listed as a.m. or p.m. and are actual or estimated times as described using local Eastern Daylight Time (EDT) throughout.

1.10. The Boston Fire Department provided logs and reports related to the extinguishment and overhaul of the fire. The Boston Fire Department conducted interviews with vessel personnel and an onsite investigation as to cause of the fire. They concluded that the fire was deemed to have been started unintentionally.

1.11. The damage to the *Spirit of Boston* was reported to be approximately $3.1 million[2].

2. Vessel Involved

2.1. The *Spirit of Boston* was built in 1990 in Warren, Rhode Island, with an assigned regulatory domestic tonnage of 94 and length overall of 153 feet. The Certificate of Inspection (COI) allowed the vessel to carry 600 passengers and up to an additional 75 crew or others, for a maximum of 675 persons. The steel hulled vessels' COI route and conditions was for Lakes, Bays, and Sounds, Boston Harbor, and adjacent waters inside a line between Deer Island and Point Allerton, MA[3] … not more than one nautical mile from shore under reasonable operating

[2] Provided by the operating company.
[3] The COI also included this route, ALSO BISCAYNE BAY AND THE INTRACOASTAL WATERWAY BETWEEN MELBOURNE, FL AND A POINT ONE MILE SOUTH OF RICKENBACKER CAUSEWAY, MIAMI, FL

conditions. The *Spirit of Boston* operated from 1990 to 2022 with a valid COI issued by Sector Boston.

Figure 1- Small passenger vessel *Spirit of Boston* underway along the Boston, Massachusetts waterfront. (Source: Open Source)

Official Name:	*SPIRIT OF BOSTON*
Identification Number:	954835
Flag:	United States
Vessel Class/Type/Sub-Type:	Small Passenger Vessel, Certificated as Subchapter "K"
Maximum Passengers and Crewpersons:	600 Passengers, crew, and others not crew, Total Persons Allowed: 675
Build Year:	1990
Gross Tonnage:	975 GT International Tonnage 94 GT Regulatory
Registered Length:	153 Feet
Beam/Width:	35 Feet
Draft/Depth:	10.4 Feet
Hull Construction:	Steel
Main/Primary Propulsion: (Configuration/System Type, Horsepower)	Diesel Direct, Twin Engine, Bow Thruster, Twin Propellers,1006 Total Ahead Horsepower
Owner/Managing Owner:	Hornblower Cruises and Events, LLC
Operator:	Hornblower Cruises and Events, LLC

Table 1 – Vessel particulars for the *Spirit of Boston*. (Source: USCG)

2.2. The *Spirit of Boston* is a Subchapter "K" [4] vessel from a size and number of passengers allowed perspective. The layout of the vessel includes three decks for passengers to congregate, which includes dance and dining areas, as well as large areas to sightsee. There is one deck below the main deck where the engine room and storage areas are located. The uppermost deck serves as a sightseeing platform and contains the pilot house wheelhouse for vessel navigation.

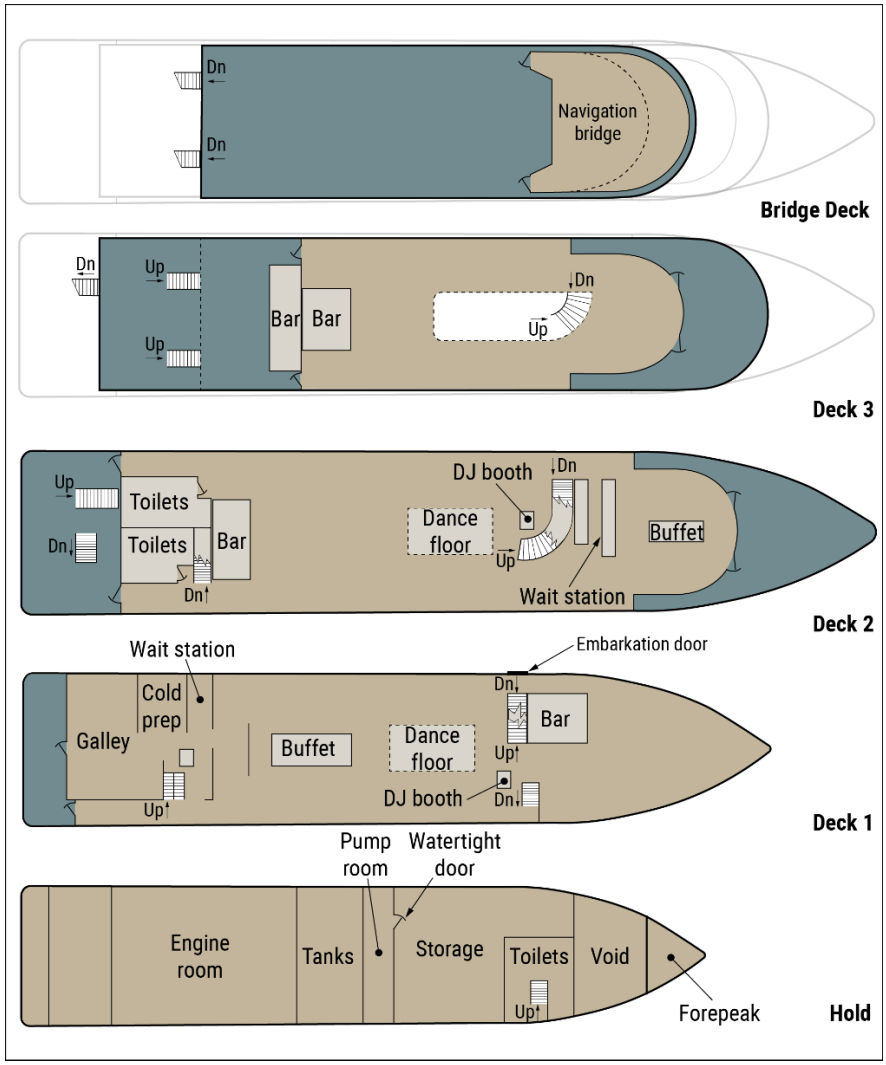

Figure 2-Overhead schematic view of the decks of *Spirit of Boston*, showing the location of principle equipment. (Source: NTSB)

The *Spirit of Boston* was assigned a domestic tonnage of 94 gross register tonnage (GRT) by the American Bureau of Shipping (ABS). ABS assigned an International Tonnage Certificate (ITC) of 975 tons and length of 153 feet. ABS considered various tonnage reduction features to meet tonnage requirements, which were incorporated within the *Spirit of Boston's* design. This is common industry practice to achieve less stringent regulatory requirements as compared to vessels over 100 GRT, which in turn reduces operation, staffing, construction, and maintenance costs during a

[4] "K" refers to small passenger vessels under 100 GRT and carrying more than 150 passengers and originally designated T- L for passenger vessels built before 1996 under 100 GRT and longer than 65'.

vessel's lifetime. Utilizing one of two specific measurement systems to calculate GRT, ABS deducted these features from the overall dimensions of the vessel and provided the information to the USCG National Vessel Documentation Center (NVDC). The NVDC includes the GRT on a vessel's Certificate of Documentation which is provided to the local Officer in Charge of Marine Inspection (OCMI) and used for the application of appropriate regulations and policies.

3. Findings of Fact – The Incident

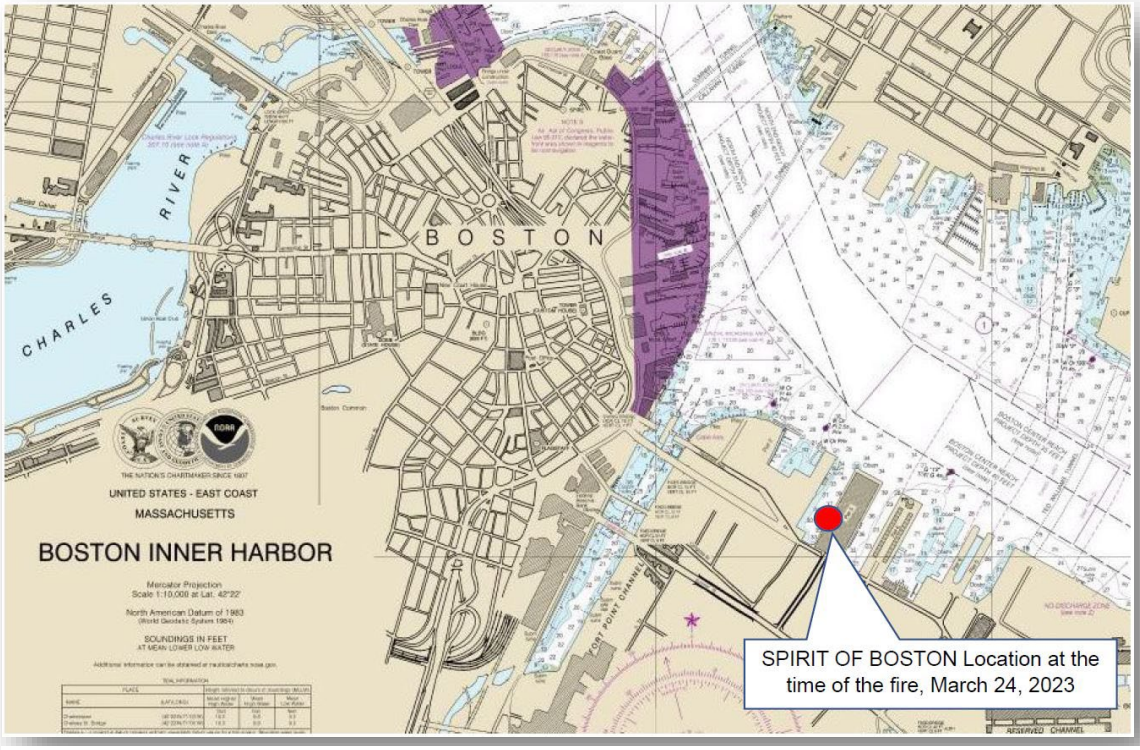

Figure 3-Location of the moored *Spirit of Boston*, March 24, 2023, when the fire was detected and later extinguished. (Source: USCG)

At approximately 10:15 p.m., March 24, 2023, the *Spirit of Boston* completed an evening dinner cruise and docked at its regular berth at the Commonwealth Pier in Boston Harbor, port side to the pier in Boston, MA. The voyage was a dinner cruise with approximately 400 passengers aboard. Every passenger disembarked when the voyage concluded. The marine crew, galley staff, and front of house staff[5] remained onboard and began securing their individual areas of responsibilities. There were two disc jockeys playing music for the guests aboard that were outside contractors.

3.1. On scene weather was a temperature of 41 degrees Fahrenheit. Winds were from the north at 10 miles per hour and the visibility was clear.

[5] "Front of house staff" was comprised of two restaurant managers, bartenders, servers, and server's assistants for a total of 16 persons in this department.

3.2. During the dinner cruise there were three types of open flames in use. Open flame paraffin candles were held in glass table sconces on the dining tables. Chaffing dish heating cannisters were used in the buffet line chafing dishes and in the coffee station at the main deck wait station. In addition, there was at least one wax “birthday type” candle used to mark a celebration of one of the guest parties. The birthday candle was reported to be a standard wax candle that would easily blow out and not reignite.

3.3. The hospitality staff used long-handled lighters with liquid butane-type fuel to light the various candles and fuel canister wicks used on the vessel.

3.4. The paraffin candles, placed in a glass table sconce, had a wick and contained liquid paraffin fuel. A high school group populated the upper deck on the dinner cruise, thus, per company procedures for student charters, no paraffin candles were used on their tables. The paraffin candles on the main deck tables were contained in glass sconces. After the cruise, the hospitality staff would blow out the paraffin candles and, the next day, would determine which needed replacing based on the amount of the remaining fuel in the candle. All of the paraffin candles would be moved up to the second deck for later use.

Figure 4-Empty paraffin candle showing the wick arrangement and the fuel container. (Source: USCG)

Figure 5-Full, unused paraffin candle with protective plastic cap in place. (Source: USCG)

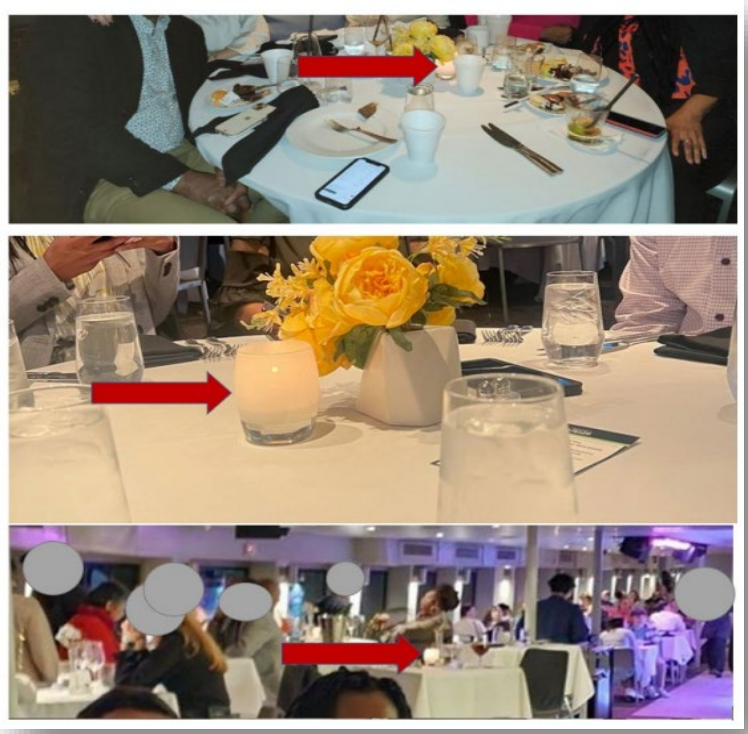

Figure 6-Paraffin candles in glass table sconces in use on the main deck tables for the cruise prior to mooring at the dock at the end of the cruise. (Source: Passenger supplied photos)

3.5. Fuel in canisters was used to heat food in chaffing dishes and to warm coffee in the main deck wait station area. Two types of canisters were used. One used a wick and the other had a cap. The stem wick fuel canisters were designed to burn for up to six hours. The other type of fuel canister can, the “Don” product, would provide four hours of fuel to heat the food.

Figure 7-Two types of chaffing dish fuel canisters in use on the *Spirit of Boston*. Top left: two 4 four-hour fuel cans to warm food. Top, right: one stem wick six-hour canister heating source. Bottom: examples of the buffet line chafing dishes used on the vessel. (Source: USCG)

3.6. The exact time and sequence of events for each of the following cannot be precisely identified; however, the following findings of fact represents events beginning at approximately 10:30 p.m. until the fire was extinguished.

3.7. At approximately 10:30 p.m., the marine crew shifted the vessel from ship's power to shore power. They departed the vessel shortly thereafter.

3.8. Galley personnel, sometimes referred to as the "back of the house" staff, departed the vessel shortly before the fire was detected and after the marine crew departed. At this time, 16 persons were left onboard, to include the disc jockeys, wait staff, servers, server's assistants, and two restaurant managers.

3.9. There were two restaurant managers aboard the vessel. The Senior Restaurant Manager had been with the company for 6.5 years. Based on interviews with company personnel, this Senior Restaurant Manager was the senior company person aboard the vessel and would be the key decision maker for the incident.

3.10. At approximately 10:52 p.m., a Server Assistant walked aft towards the wait station, which was located at the aft of the dining area on the port side. As she walked aft, she saw smoke against the ceiling lights. When she entered the wait station, she stated that she smelled smoke. She then crouched down and stated that she could see sparks under the drinking glass roller

cart, midway into the space against the aft bulkhead. The Server Assistant immediately notified the Senior Restaurant Manager.

3.11. The Senior Restaurant Manager moved into a position to look at the scene of the sparks. Neither the Server Assistant nor the Senior Restaurant Manager saw a fire. They described a popping sound and witnessed a spark, or sparks, like electrical sparks or sparks on a sparkler. The Senior Restaurant Manager described what she witnessed in this manner[6]:

> *A. And, again I just -- I don't -- I couldn't see where it was actually starting from. I just saw the flames moving forward towards me from the wall.*
> *Q. So I'm sure that was a scary moment for you. You kind of bring us through this going through your mind. What were you thinking when you saw that?*
> *A. Yeah, I mean I had to try to just like process it for a second. Me and Sharon were just trying to figure out, like what was on fire. We were just kind of confused. I contemplated grabbing a fire extinguisher, the closest one to me that I saw, and that one was kind of by the staircase which was on the other side of the deck that I was on. And in my mind, it takes the same amount of time to get there to go up the stairs to tell everyone to get off the boat, but I just knew that it wouldn't have made a difference if I went and grabbed it and went back to that wait station. The flames were just too much for me. So I just – I told Sharon to just get off the boat, and I immediately sent the other manager upstairs to tell everyone to get off the boat. I just started walking through to make sure that there was nobody on any of the other decks.*

3.12. The Associate Restaurant Manager observed the fire. He observed it was coming from under the drinking glass rolling cart. He stated the fire formed an "S" shape or was snake like. Initial interviews would indicate that the fire was a foot and a half in length. He described it in a subsequent email[7] as less than two to three feet in length, a width of less than three inches, and a flame height of less than two to three inches. In his interview,[8] he stated:

> *"From what I saw, it looked like there was a line of fire basically in the form of like a snake basically going across the floor. I didn't see anything actually that was lit on fire, but there was some minor flames coming from the corner."*

[6] CG 026_1 - Interview Transcripts Combined NTSB Produced_Redacted, Senior Restaurant Manager
[7] CG 028 - Supplemental Email to Associate Rest. Manager Fire Diagram and Other Info_Redacted
[8] CG 026_1 - Interview Transcripts Combined NTSB Produced_Redacted, Associate Restaurant Manager

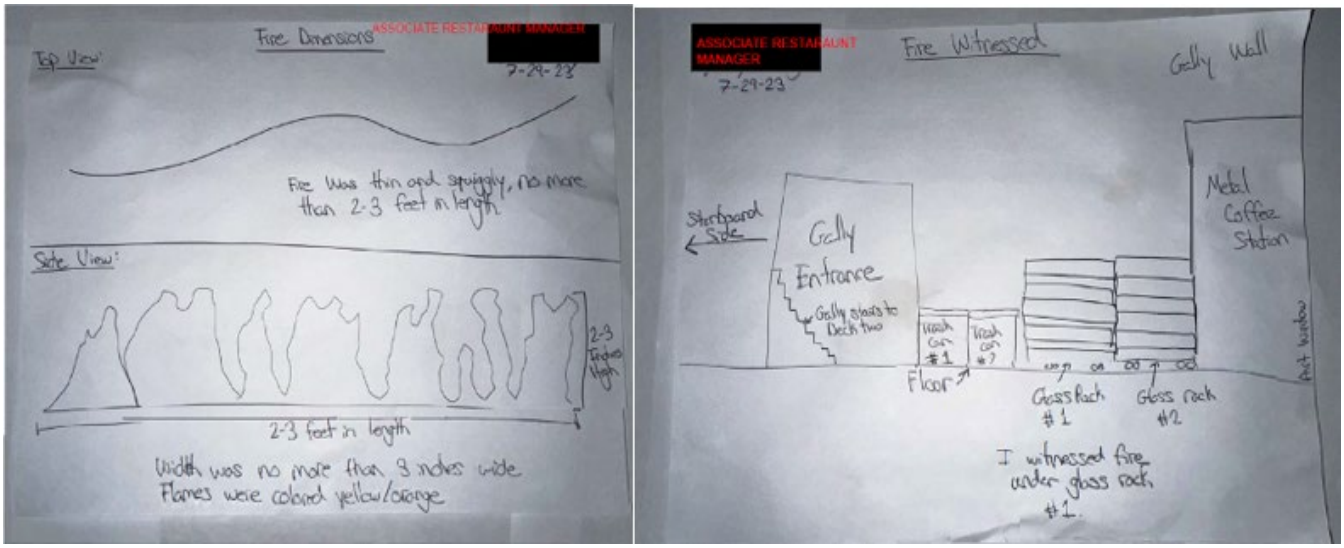

Figure 8-The Associate Restaurant Manager was asked to draw a diagram of the fire as he saw it. Left: the size and extent of the fire witnessed. Right: the location of the fire in relation to the after bulkhead of the main deck wait station. (Source: CG 028 Supplemental Email to Associate Rest. Manager Fire Diagram and Other Info-Redacted)

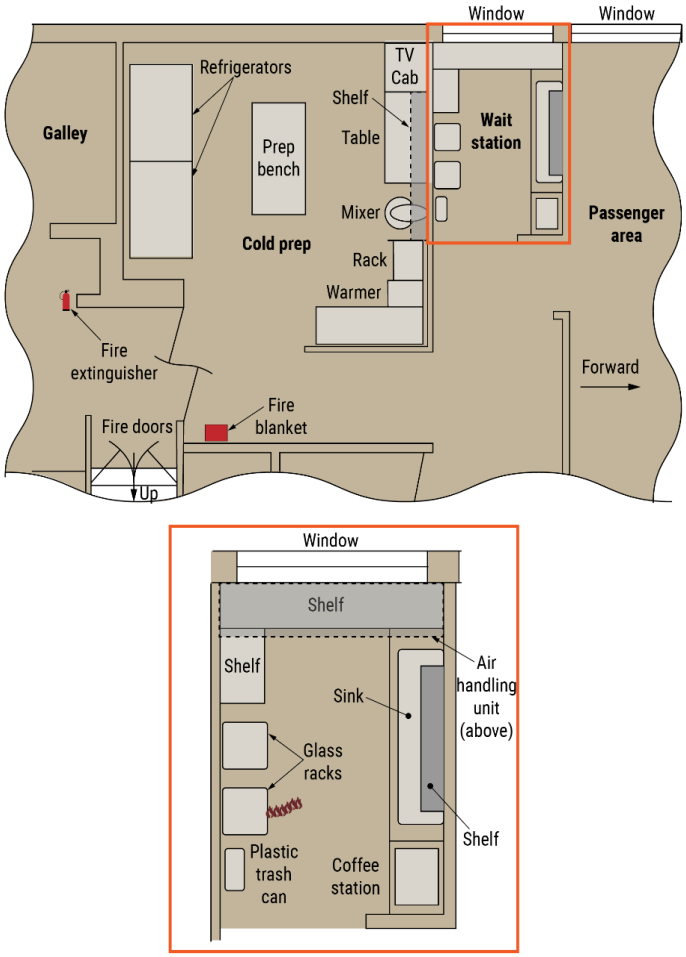

Figure 9-Overhead view of the *Spirit of Boston's* cold prep area, galley, wait station, and passenger area, to include the location of the fire blanket and fire extinguisher. The closeup of the wait station depicts the area the initial fire was witnessed by the Associate Restaurant Manager. (Source: NTSB)

3.13. The Associate Restaurant Manager would also indicate that he heard a continuous sound while observing the fire and stated:

> "*I saw that line of fire, I also heard like a very high-pressure noise, and I don't know what it was. It sounded like basically an air compressor like when you press it, and it shoots out pressurized air*[9]*."*

3.14. A bracket mounted type B-C[10] fire extinguisher was mounted in close proximity of those personnel who witnessed the fire, in the adjacent passageway, looking into the fire scene. There was a fire blanket mounted on the bulkhead in the vicinity of the fire, near the galley. Both devices were in areas clear of the fire, near the wait station area.

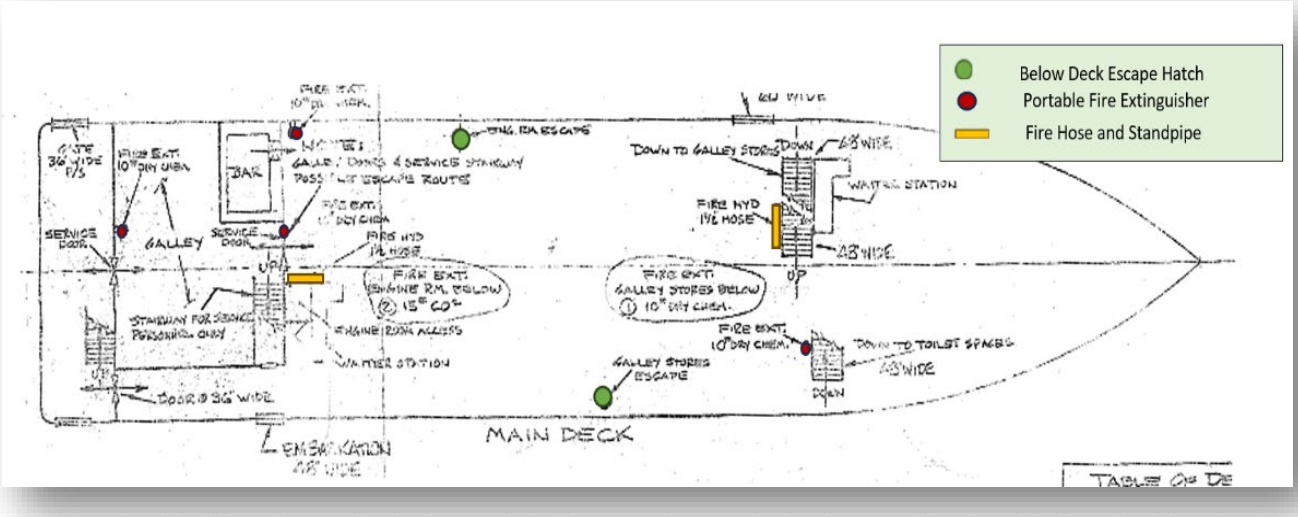

Figure 10- The original fire and egress plan for the main deck of the *Spirit of Boston*, showing the reported location of the fire extinguishers, fire hose and standpipes and the escape hatches from below deck. Not shown is the location of the fire blanket, general alarm pull station, fire doors, and galley hood fire suppression pull station. (Source: City Cruises)

3.15. Small portable fire extinguishers are designed to be used by personnel and do not require protective firefighter clothing when using. The use of the fire extinguisher allows the person using the fire extinguisher to stay a safe distance from the fire.

[9] CG 026_1 - Interview Transcripts Combined NTSB Produced_Redacted, Associate Restaurant Manager
[10] A type B-C portable fire extinguisher is designed to extinguish fuel fires and electrical fires with a chemical agent.

Figure 11-Person using a fire extinguisher to attempt to extinguish or reduce the size of a fire in a training scenario. (Source: Industrial Safety and Fire Training)

3.16. A fire blanket is a device that is used to both protect the responder and deprive the fire of the oxygen used to support combustion, when the blanket is thrown over a fire. It can also be used if a person is on fire to wrap the person and smother the fire or flames.

3.17. The Senior Restaurant Manager directed all main deck staff and the staff on the upper decks to evacuate the vessel through the port side door, down the gangway, to the safety of the dock. The staff mustered on the dock and all 16 personnel were accounted for and safe without injury. Personnel evacuating the vessel stood out in the weather in the work clothing they were wearing when the vessel was evacuated.

3.18. The fire doors on the vessel, which segment and establish fire boundaries between the main deck and the upper deck, were not closed. There are several sets of fire doors activated either at the local site of the doors, or from the wheelhouse. Pulling a control handle at a location near the doors would close the door and limit the spread of any fire between the main deck and the deck above.

3.19. Vessel personnel heard an unidentified alarm emanating from inside the vessel as the fire grew in intensity. An activated heat detector produces an audible alarm in the wheelhouse.

3.20. The Senior Restaurant Manager made company notifications via her cell phone and the Associate Restaurant Manager called 911 to notify the emergency call center. The call was routed through several dispatchers and the Boston Fire Department, and the Massachusetts State Police responded. Based on the Boston Fire Department reports[11], the Boston Fire Department received the alarm at 11:05 p.m. and the first unit arrived on scene at 11:09 p.m.

[11] CG 013 - Boston Fire Department and Run Report Redacted

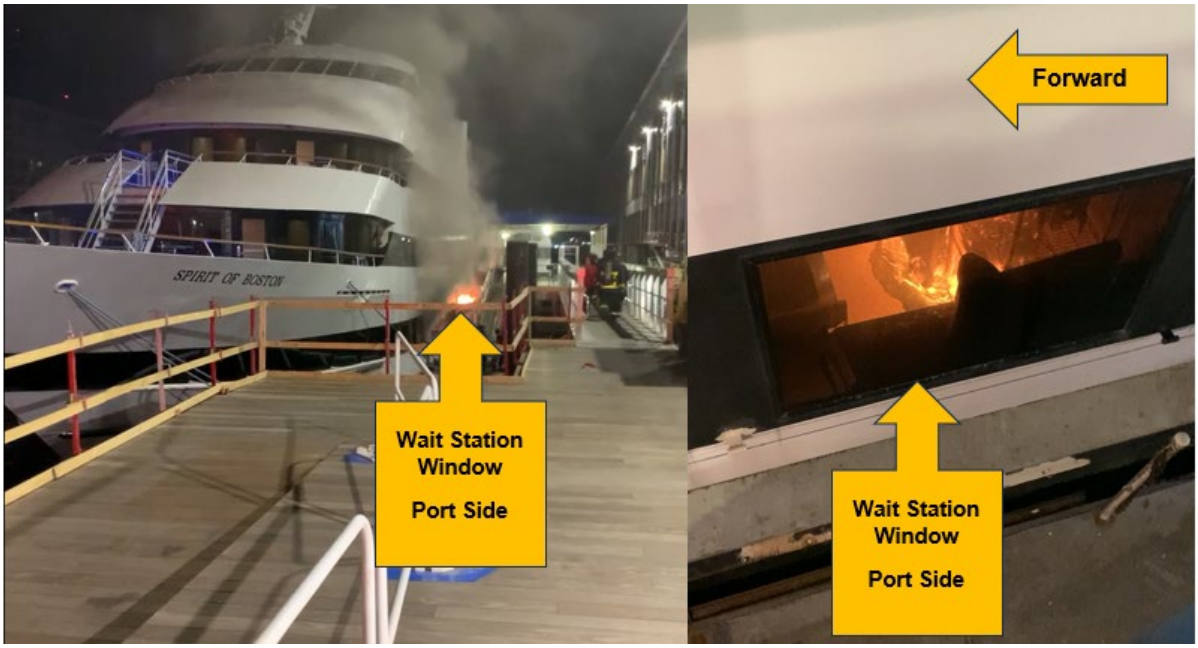

Figure 12- **Left**: The *Spirit of Boston* with smoke and flames and Boston Fire Department personnel arriving on the scene.
Right: The window on the port side looking into the main deck wait station showing the fire on the after portion of that space. (Source: *Spirit of Boston* Crew)

3.21. The nearest Boston Fire Department units were located nearby in the station house on Atlantic Avenue and arrived at the scene in approximately five minutes.

3.22. Firefighters used two hose streams, one to suppress the fire so the other team could attack the fire in the main deck. Firefighters on the vessel and those on marine fire units broke vessel windows to allow for ventilation.

3.23. At approximately 11:19 p.m., the fire department elevated the fire response to two alarms per department protocol. At 11:39 p.m., the fire departments reported the fire was knocked down and the overhaul of the fire scene commenced. These activities were related to looking for lingering hot spots and ensuring the fire was extinguished.

3.24. At 1:06 a.m., March 25, 2023, the Boston Fire Department declared the fire out and fire units began to secure and return to their respective bases.

3.25. Eight hours had elapsed prior to determination which individuals required to alcohol test, and most of those individuals requested had been released from work shift. No alcohol testing was conducted. All drug testing was completed for vessel marine crewmembers on staff the night of March 23, 2023. Additionally, all restaurant staff who were determined to be directly involved were also drug tested.

4. Findings of Fact - Additional/Supporting Information

4.1. Regulatory and Policy Framework

4.1.1. The *Spirit of Boston* is Coast Guard certificated as a Title 46 CFR Subchapter K vessel with a significant number of regulatory requirements using old Title 46 CFR Subchapter T (T-L vessel) requirements. Regulatory and policy applicability varied, dependent upon vessel system using the below regulatory and policy guidance documents. For example, old Title 46 CFR Subchapter T allowed the exclusion of fire detection; however, the vessel was required to comply with current security requirements. Below is a list of the regulatory and/or policy documents which applied to the *Spirit of Boston*.

4.1.1.1. Marine Safety Manual Vol. II
4.1.1.2. Title 46 CFR Part 10
4.1.1.3. Title 46 CFR Part 15
4.1.1.4. Title 46 CFR Subchapter T
4.1.1.5. Title 46 CFR Subchapter K
4.1.1.6. Title 46 CFR Subchapter H
4.1.1.7. T - K Manual
4.1.1.8. Small Passenger Vessel Risk Based Inspection Program Mission Management System (MMS) Instruction

4.1.2. Title 46 CFR Subchapter T was initially published in the Federal Register (FR) as a final rule (25 FR 9315) on September 29, 1960, and underwent a significant revision on January 10, 1996, when a final rule (61 FR 947) was promulgated. New small passenger vessels are required to meet requirements in the updated Title 46 CFR Subchapter T regulations or Title 46 CFR Subchapter K regulations, while existing vessels maintain certain regulatory standards from the original Title 46 CFR Subchapter T. Major conversions to vessels are required to meet the new Title 46 CFR requirements. At the time of this investigation, the Coast Guard was unable to find any record of the *Spirit of Boston* undergoing a major conversion.

4.1.3. The *Spirit of Boston* is an existing, steel-hulled vessel at the implementation of new Title 46 CFR Subchapter T (which also created Title 46 CFR Subchapter K), thus it was not required to install fire detection or fixed firefighting suppression in the engine room. The *Spirit of Boston* **was fitted with a fire detection system,** although not required by regulation. There were heat detectors in the galley and in the engine room, with visual and audible alarms located in the vessel's wheelhouse. The system was fully operational and was not a part of the original vessel outfit. The fire detection system was installed by the former owner and operator, Boston Harbor Cruises.

4.1.4. The vessel had eight fire extinguishers of two types[12] and six, 1.5 inch, 50-foot fire hoses with the associated standpipes to allow the pumping of firefighting water if necessary.

[12] Extinguisher type and location; Pilot House 2 10# Type B, C and Passenger Spaces 6 40# Type B, C

4.1.5. In summary, the *Spirit of Boston* regulatory application (and thus policy application) was Title 46 CFR Subchapter K, but with many systems applicable under "old" Title 46 CFR Subchapter T (accurately known as T-L) or Title 46 CFR Subchapter H with multiple policy documents available which explain the regulatory requirements and available to vessel operators.

4.2. Coast Guard Compliance Oversight

4.2.1. The most recent Certificate of Inspection (annual) inspection was completed on December 01, 2022, with no deficiencies noted and the vessel was deemed fit for service and route. An inspection note was added and stated the following:

> *"Reviewed active special note in regards to excessive pitting on the aft main deck to include under freezers and bottom of aft galley bulkhead. Pitting was evaluated by attending marine inspector and concluded that repairs can be made at next drydock in 2024."*

4.2.2. The *Spirit of Boston's* last full Coast Guard COI inspection (5-year cycle inspection) occurred on December 29, 2021, with the following deficiencies noted and those deficiencies were later corrected, and the vessel cleared:

> *"Issued 02 deficiencies:*
> *1. One of the two fire pumps not capable of making the required 60 psi, per T-L*
> *2. Galley extraction hood fixed firefighting system servicing, not current."*

4.2.3. The vessel was determined by the Coast Guard to be a "Tier 1" vessel, making it an elevated risk, in accordance with a risk-based matrix work instruction promulgated by the Coast Guard's Office of Commercial Vessel Compliance (CG-CVC) in 2020 and updated in 2021. The Small Passenger Vessel Risk Based Inspection Program arose as a Coast Guard programmatic initiative after the small passenger vessel *Conception* fire, which resulted in the loss of 34 lives and the loss of the vessel.

4.2.4. During Coast Guard vessel inspections, the marine inspector shall direct the crew to conduct a drill, or drills, to witness the proficiency of the crew in a simulated emergency response. These drills can be fire drills, man overboard, or other vessel emergency scenarios. The inspector will inform the crew of the planned drill, location, and type. The crew will respond to the drill to the satisfaction of the attending inspector. If the drill is a fire drill, typically, there is a response to the announced scenario, but without charging fire hoses or using fire extinguishers. On December 1, 2022, the Coast Guard conducted an expanded annual inspection. During this inspection, the inspectors witnessed a fire drill and man overboard drill, which were both completed to the satisfaction of the inspector. The last Coast Guard inspector aboard the vessel, conducting the inspection explained[13] how he typically conducts drills:

[13] CG 026_1 - Interview Transcripts Combined NTSB Produced Redacted, USCG Marine Inspector

Q. Okay. And then what about the fire drill?
A. So fire drills are usually done tabletop style when we're coming back to the dock. We'll talk to the crew, and we'll say, okay, if there's a, if there was a fire here what would you do? We want to listen to their procedures as far as we get the fire extinguishers or we get the fire hose or we do whatever, whatever their procedures say. We want to listen to them. And it's a question and answer. Like, do you have a fire extinguisher onboard? Where are they? Do you have fire hoses? Where are they? Do you have fixed fire? How, what is the, what is the procedures for releasing that if you have it onboard the vessel? And we evaluate the crew's knowledge. Usually we'll have somebody from -- a manager from the company that's not driving the boat standing there with us. They can tell us whether or not the crew is answering the questions correctly.
Q. And on that particular day do you remember where you did the simulated fire drill?
A. I don't.

4.2.5. At the time of the fire, the *Spirit of Boston* was fit for service and route and there were no outstanding deficiencies that affected the vessel from a Coast Guard inspection and oversight perspective.

4.3. Company Profile and Oversight of Operations

4.3.1. The *Spirt of Boston* is owned by Hornblower Cruises and Events LLC. (Hornblower) and operated under a subsidiary business unit named City Cruises (also referred to as the company throughout this report), according to the Hornblower internet website[14]. The ownership operates more than 250 vessels, both domestic & international, comprising of all types of small passenger vessel operations, with multiple subsidiary business units. The business unit named City Cruises operates approximately 123 vessels, with 24 of those vessels certificated utilizing primarily old Title 46 CFR Subchapter T requirements.

4.3.2. City Cruises operates several vessels in the Boston metropolitan area. This includes ferry and water taxi vessels, dinner boats, city sightseeing, and whale watching cruises. The company Boston Dining Fleet is comprised of the vessels: *Spirit of Boston*, *Odyssey*, *Boston Elite,* and *Seaport Elite.*

4.3.3. The company provided an organization chart for the *Spirit of Norfolk* fire investigation. The Co-Chief Operating Officer was questioned about the accuracy of that organization chart at the time of the *Spirit of Boston* fire. He testified that it was accurate as it pertains to the National Marine Team.

[14] As of early 2023

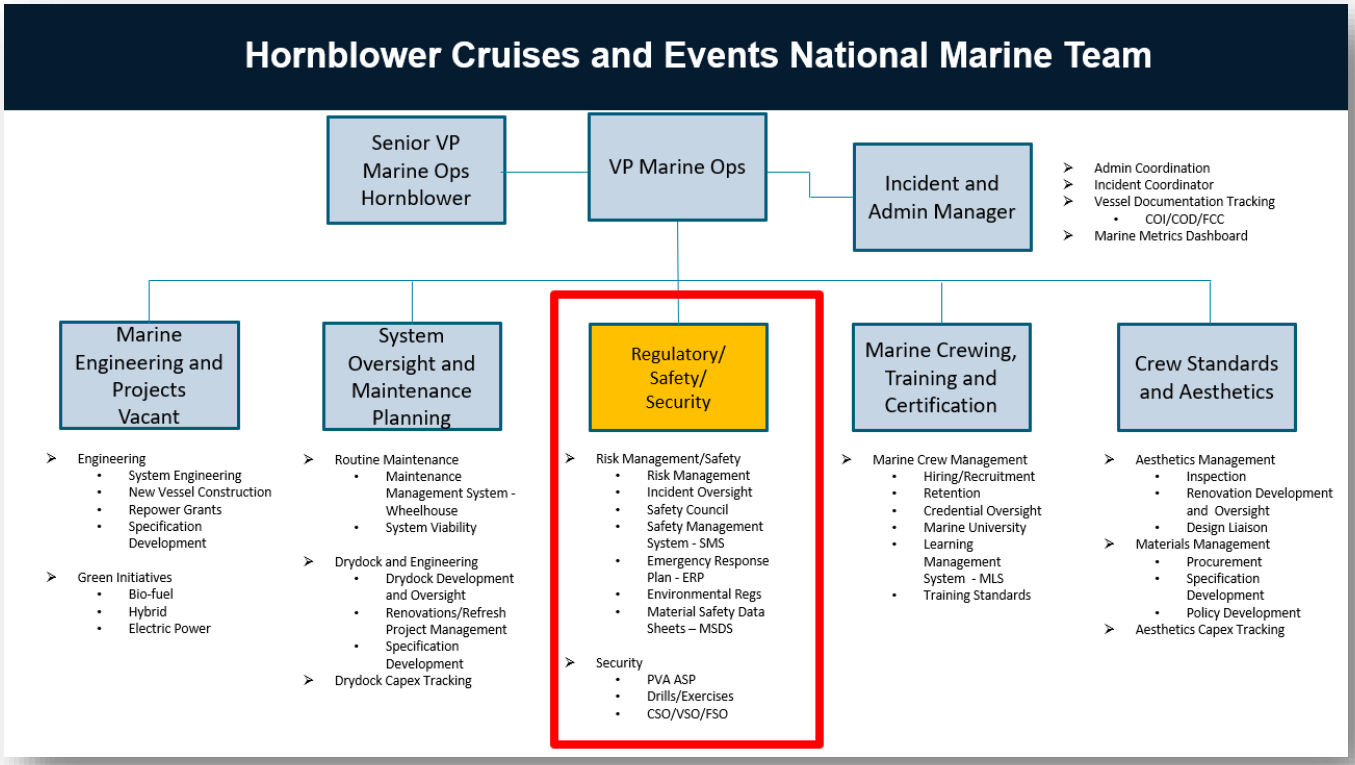

Figure 13- The National Marine Team City Cruises Organization Chart showing the Directors of the various components of the company. The Director of Regulatory/Safety/Security had been highlighted in the red box by the investigation and the box colors for the Director's color has been changed for readability. (Source: CG 049 City Cruises Organization Chart 2022)

4.3.4. The General Manager of the Boston Dining Fleet manages the operation of four dinner vessels in Boston, MA. There is a large support staff assisting those operations, which includes sales and marketing, marine, food and beverage, human resources, and recruiting and retention. The General Manager has no specific marine training. They report to the Regional VP and General Manager for the Boston Operation.

4.3.5. The Director of Marine Operations in the City Cruises organization plays a critical role in the overall safety of the *Spirit of Boston* and the other four Boston based dinner vessels, including the operations, training, navigation, engineering support, and security. Interviews found there is a "team" approach and a "dotted line" relationship to upper management engagement, vice a clear chain of command for issues related to vessel operations. The Director of Marine Operations directly reports to the site General Manager. There is also an Associate Director of Marine Operations.

4.3.6. The Director of Food and Beverage is responsible for the day-to-day activities of the personnel who cater to the needs of the passengers, relating to hospitality. These hospitality personnel (hospitality staff) set up tables, serve drinks, run food to the tables, and perform other similar duties. At the time of the accident, the marine crew and the galley crew had departed the vessel. The front of the house staff remaining aboard was composed of two restaurant managers, servers, server assistants, and bartenders.

4.3.7. At the time of the accident there were vacancies with upper-level management, as noted on the organization chart[15] for the National Marine Team. Those responsibilities were absorbed into other positions within the organization. There is a National Director for regulatory/safety/security in the organization chart, but no witness identified a person in the corporation that was responsible for the overall safety of operations. Without a Safety Management System (SMS) in this portion of the larger corporation, Hornblower, there is no position called the "Designated Person Ashore."[16] The investigation attempted to determine who in the National Marine Team was directly responsible for the safety of operations. The Co-Chief Operating Officer[17] was asked in an interview:

> *Q. Who's the person that's directly responsible within the company to support safety of operations outside of the regional level? Those who would I turn to if I had a safety issue within the company.*
> *A. Outside of the port level, are you asking at the national level?*
> *Q. Yeah. So for example, someone within the port of Boston says "we have a safety issue…we need some help here." Who helps from the corporate level on the issues related to safety?*
> *A. Umm, well, certainly XXXXXX[18] (VP of Marine Operations) would be uh. One of the gentlemen that they might turn to and well that he would be primary, XXXXXXX[19] (Senior VP of Marine Operations, Hornblower) who overseas our group Marine would be another one. He's got very close working relationships. You know, with all of our ports and then if there are anything specific related to particular matters, it could be one of the members of their team on the national team, one of their directors.*
> *Q. So.*
> *A. And I'd say those would be the two primary*.

4.3.8. Hornblower management stated in the 2022 *Spirit of Norfolk* fire investigation, conducted by the Fifth Coast Guard District, that they have a strategic goal of implementing the voluntary Passenger Vessel Association created SMS or some similar system, at some point in the future for vessels in the fleet similar to the *Spirit of Boston*. There was also an assertion by Hornblower representatives[20] that the company had instituted a significant portion of the procedures and policies that an SMS would entail in the methods used by the company to manage their vessel fleet where an SMS was not in place.

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[15] CG 049 - City Cruises Org Charts Redacted

[16] Definition of the Designated Person, International Safety Management Code, IMO Resolution A.741(18) 1993, DESIGNATED PERSON(S)
To ensure the safe operation of each ship and to provide a link between the company and those on board, every company, as appropriate, should designate a person or persons ashore having direct access to the highest level of management. The responsibility and authority of the designated person or persons should include monitoring the safety and pollution prevention aspects of the operation of each ship and to ensure that adequate resources and shore based support are applied, as required.

[17] CG 026_1- Interview Transcripts Combined NTSB Produced_Redacted, Co-Chief Executive Officer

[18] Redacted

[19] Redacted

[20] *Spirit of Norfolk* Public Hearing Testimony, Senior VP Marine Operations

4.4. City Cruises Safety of Operations, Culture and Accident Prevention Strategies

4.4.1. *Recent History*

4.4.1.1. The company operated and continues to operate a large fleet of commercial passenger vessels nationally and internationally. To support these diverse passenger vessel operations, the company had a set of safety guidelines, practices, and procedures, which, in the case of the *Spirit of Boston*, included the safety related topics contained in this section of the report.

4.4.1.2. The investigation examined several previous fires that took place onboard Hornblower, and their subsidiaries (City Cruises and Boston Harbor Cruises) owned vessels to determine how the company reacted in terms of fire safety, fire prevention, firefighting, and incident review of investigations to determine how these fire incidents impacted the events that transpired on the *Spirit of Boston* on the evening of March 24, 2023.

The investigation began with examining a fire that ignited from oil spraying onto a main diesel engine from a loose hydraulic hose aboard the vessel *Salacia* on August 8, 2021. At the time of the engine room fire, the vessel was carrying 174 passengers while transiting from Provincetown, MA to Boston, MA. The master extinguished the fire using a portable fire extinguisher.

The investigation examined the fire on the *Spirit of Norfolk*, which took place on June 7, 2022. On June 10, 2022, there was a small galley electrical fire onboard the *Spirit of Baltimore*, that a deckhand extinguished with a portable fire extinguisher, while the captain stood by as backup with another dry chemical fire extinguisher.

The investigation examined another smaller generator fire that took place on the *Rendezvous* in Philadelphia, PA on June 29, 2022.

The investigation also examined another event in Boston Harbor, on May 29, 2021, before the *Spirit of Norfolk* fire, where a burning vessel drifted down onto the docked and passenger loaded *Odyssey*. In the case of the *Odyssey*, the passengers were evacuated and put on another cruise, there was no damage to the *Odyssey*.

City Cruises personnel were asked if the evacuation and cancellation of the *Odyssey* cruise had a negative impact or disrupted normal operations, to determine whether the incident was classified as a Serious Marine Incident.

Per company policy, City Cruises required all incidents to be reported and defined a *Serious Marine Incident* as an event that negatively impacts or disrupts normal operations and requires a company safety investigation.

4.4.1.3. All five of these events would serve as a lens to determine the focus of the company when it came to safety in general and aboard the *Spirit of Boston*. The individual topics examined in this section are those that could have, or would have, played a part in the fire on the *Spirit of Boston*. Other fire events were examined starting in 2021, to determine the conditions or events that might have led to the fire on the *Spirit of Boston* and the response to that fire by vessel personnel and the company.

4.4.1.4. Table 2 are fire events in the U. S. Coast Guard MISLE database that are associated with Hornblower/City Cruises from the year 2021 to present day. There may be other fire related events that were not captured in the database.

Name	Date	Location	Source/Compartment	Extinguishment	Underway	Persons on Board	Investigation Determines Incident Most Likely Fit Company Defined Serious Marine Incident*
SALACIA	August 8, 2021	Massachusetts Bay, MA	Main Diesel Engine	Portable fire extinguisher	Yes	174	Yes
SPIRIT OF NORFOLK	June 7, 2022	Norfolk, VA	Engine Room	Fire Department / Total Vessel Loss	Yes	108	Yes
SPIRIT OF BALTIMORE	June 10, 2022	Baltimore, MD	Galley	Portable fire extinguisher	No	25	Yes
RENDEVOUS	June 29, 2022	Philadelphia, PA	Generator	Portable fire extinguisher	No	60	Yes
WILD GOOSE	October 19, 2022	Los Angeles, CA	Galley	Portable fire extinguisher	Yes	89	Yes
SPIRIT OF BOSTON	March 24, 2023	Boston, MA	Wait Station (forward of galley)	Fire Department	No	16	Yes
HORNBLOWER SERENITY	July 18, 2023	New York, NY	Engine Room	Portable fire extinguisher	No	Unk	Yes
CHERRY BLOSSOM	September 13, 2023	Alexandria, VA	Galley Area	Portable Fire Extinguisher Galley Staff	No	Unk	Unk
OCEAN NAVIGATOR	October 18, 2023	Portland, ME	Engine Room	Explosion in Generator Crankcase, Self Extinguished after Crankcase Explosion	No	210	Yes
SPIRIT OF BOSTON	March 2, 2024	Boston, MA	Main Diesel Engine	Portable fire extinguisher	Yes	109	Yes

(*) City Cruises defines a **Serious Marine Incident** ***as the death, serious injury to a person, a vessel fire, grounding, flooding, collision, mechanical failure, structural failure, pollution incident, and all other incidents with the potential to negatively impact or disrupt normal operations.***

Table 2 – Table listing fire related events, known to the U. S. Coast Guard, since 2021, listing vessel, date, location, location of fire, extinguishing agent, if underway, personnel count, and classification of event. (Source: USCG)

4.4.2. ***Electrical Safety***

4.4.2.1. In 2022, the USCG reviewed evidence relating to the *Spirit of Norfolk* fire, during that time it was discovered that the Senior Vice President for the company sent out an email[21] in 2020 to General Managers and Directors of Marine Operations with photos of poorly maintained electrical installations onboard company vessels and alerted those managers to the issues. The Senior Vice President asked the managers and directors to examine electrical safety issues onboard their vessels. The email contained an attachment showing examples of missing grounding plugs, multiple electrical strip chargers linked together, and issues with electrical wiring terminals in circuit breaker boxes. Employees were directed to the following issues:

> *Improper Electrical Safety, including the misuse of electrical outlets, power strips, and plug multipliers, is one of the unsafe practice that is commonly found on board vessels. Improper electrical safety can lead to fire or shock. Electrical safety is an extremely important part of shipboard safety and it is everyone's responsibility to ensure we are following some basic rules:*
>
> *- Eliminate the use of power strips, especially daisy-chained power strips.*
> *- Ensure all of your electrical outlets, switches and lights are in good working order with approved, intact covers.*
> *- Receptacle outlets and attachment plugs for portable lamps, tools, and similar apparatus operating at 100 volts or more, must have a grounding pole and a grounding conductor in the portable cord*
> *- Reduce the use of extension cords. They should only be used on a temporary basis, not a permanent solution for the lack of properly installed electrical outlets.*
> *- Never splice back together an electrical cord that has been damaged or cut on a piece of equipment. Either replace the cord or replace the piece of equipment.*
> *- Do not overload power outlets.*
> *- We should never have wire terminations outside of an approved electrical enclosure.*
> *- Remove old wires runs. We should never have dead end wire terminations.*
>
> *I have attached a few examples of poor electrical safety. During your walk through of your vessels, you should be on the lookout for these issues and eliminating them. We need to rid ourselves of these unsafe practices on our vessels.*

[21] Email Senior Vice President to fleet, February 2020

Electrical Safety is everyone's responsibility. We will add basic electrical safety training to orientation training to provide our crew with the knowledge to keep themselves and others safe.

4.4.2.2. During the investigation onboard the *Spirit of Boston*, a 24V DC electrical circuit box was found in the vessels engine room to be in the condition indicated in Figure 14. The investigation requested that the company provide the name(s) of the individuals who worked on the circuit shown in this figure to determine when and why these connections were made and to determine if the connections and electrical work conformed to applicable code or regulations. The company was not able to provide responsive information.

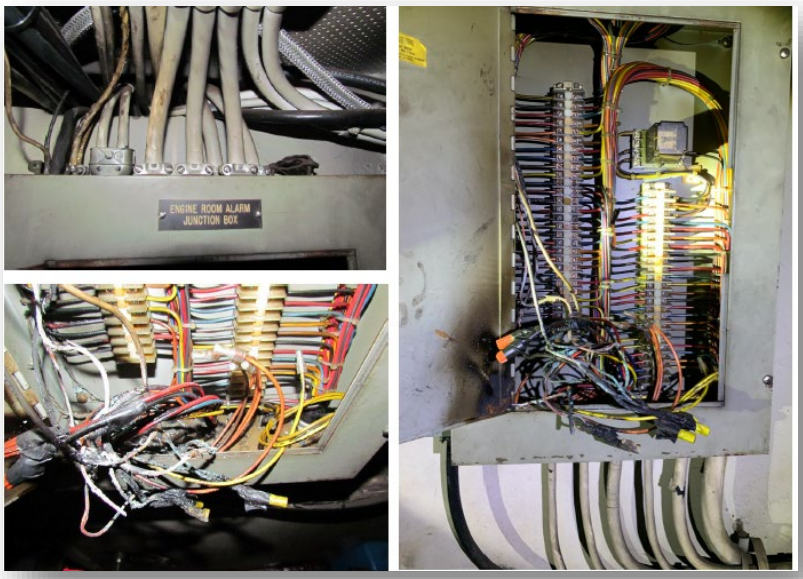

Figure 14- Images showing the *Spirit of Boston* 24V DC engine room alarm junction box panel with twisted, wire nutted and taped wire terminations in the bottom of the box. This box was in the lowest deck of the vessel. Some of the corrosion shown may have been caused by firefighting water on the main deck above seeping down. (Source: USCG)

4.4.2.3. During an interview with the National Director of Marine Engineering to identify the issues in the circuit panel in Figure 14 above, he stated that a fuse (circuit protection) was required on the windshield wiper wire circuit that ran from vessel's battery as means to reduce the potential for a fire if the circuit was overloaded or shorted. The regulations required circuit protection on that circuit. After his review of the circuit in question, he identified that there was no required circuit protection on the circuit that left the battery. In his interview he testified,

Q. *And is it good marine practice to have a fused wire leaving the battery heading up towards the wheelhouse?*
A. Well, yeah, absolutely. And it's a rule.
Q. And is there a fuse when that circuit left the battery?
A. There was not. That's why we have this problem.

Q. Okay. So, the regulations required a fuse for good --
A. Yes.
Q. Okay. And there wasn't a fuse?
A. No.

4.4.3. ***Identification and Elimination of Risk Posed by Flammable Liquids***

4.4.3.1. The company used three types of open flames on the vessel, two of which were flammable liquids. Those were paraffin liquid candles in glass table sconces, food warming flammable fuel canisters heating sources for food, and beverage and birthday candles for celebrating guest occasions such as birthdays. The company also stored the paraffin candles and heating fuel canisters in storge racks and on the wide windowsill in the wait station area. Long-handled lighters with liquid butane-type fuel (fuel which turns to a gas when it leaves the lighter and is ignited) were also used to ignite the various types of flames in the candles and food warming flammable fuel canisters.

Figure 15 -**Top**: paraffin candles stored in racks near the galley area. **Bottom**: Fire-damaged canister fuel heating cans stored on the wide windowsill running fore and aft in the main deck wait station. (Source; USCG)

4.4.3.2. The company did not have a policy in place directing employees on how to store these types of flammable fuels onboard nor did the company require proper storage locations. There were no flammable storage lockers and containers for either the paraffin candles or the heating fuel canisters. Both fuel sources are known flammable substances and are potential fire sources. The food warming flammable fuel canisters were stored in the wide fore and aft running windowsill in the wait station area. Paraffin candles and canisters for use under chaffing dishes were also stored in racks in the galley. The company had no written safety policies to ensure the safe use of open flames for paraffin candles, fuel in canisters to heat chaffing dishes, long-handled lighters or birthday candles. Some manufacturers[22] have detailed procedures for the safe use of chaffing dish fuel containers to mitigate the possible dangers posed in using this potential fire source.

4.4.3.3. Several colleges[23] have safe use instructions for canister type heating fuel (Sterno®, Don® and other brands of heating cannisters for chaffing dishes and coffee pots) that include storage, extinguishment, and fire prevention guidelines. Guidelines for the safe use of heating fuel in canister form are published by various institutions:[24]

> *This guideline establishes safe operating procedures for the use of Solid Alcohol Fuel (Sterno®) on university premises. This guideline is intended to provide precautions to take to prevent the ignition of combustible material which might result from misuse of Sterno®; and to ensure the safety of all occupants. This guideline is for all University personnel as well as all outside contractors and visitors who handle or use Sterno® on University Property.*
>
> *The event coordinator/representative must identify a trained attendee with access to a Type ABC portable fire extinguisher.*
>
> *STERNO® USE*
> *3.1.1 Use caution when handling open flame products.*
> *3.1.2 Use a blunt object, such as a spoon, to pry off the lid.*
> *3.1.3. Cup hand over lid when opening the can.*
> *3.1.4. Remove excess gel from lid if it is being used as a regulator.*
> *3.1.5 Wash fuel residue from hands.*
> *3.1.6 Place the can underneath the chafing dish or beverage urn before lighting. Chafing dishes and beverage urns, using Sterno®, must be placed on a non-combustible surface. A non-combustible mat, ceramic or metal tray extending at least eight inches beyond the Sterno® container in each direction can be used.*
> *3.1.7 Ensure the cans are placed securely in the equipment. Secondary containers, e.g. fuel holders with cover, are mandatory.*

[22] CG 014 - Sample Sterno® Safety Rules. Combined sources.
[23] CG 014 - Sample Sterno® Safety Rules. Combined sources.
[24] CG 014 - Sample Sterno® Safety Rules. Combined sources.

3.1.8 Use a long-handled match or butane lighter to light the can.
3.1.9 Sterno® fuel use must be attended too at all times by either caterer or by designated University personnel.
3.2.10 Use a snuffer paddle, regulator or saucer to extinguish the flame. 3.2.11 Wait until the can is cool before touching.
3.2.12 Do NOT use a sharp knife to pry off lid.
3.2.13 Do NOT use a lit can to light another can.
3.2.14 Do NOT carry lit cans or chafing dishes or beverage urns with lit cans.
3.2.15 Do NOT touch or dispose of cans while still hot, use hands to extinguish flames or blow flame out.
3.2.16 Do NOT allow loose clothing, hair, napkins, tablecloths or other combustible materials near flame. Combustible materials such as plates, napkins, plastic utensils, cups and similar products must be separated by a minimum of three feet from Sterno®.

4.4.3.4. These aforementioned Sterno® safe usage guidelines sometimes refer to the 2013 Philadelphia Fire Code, Chapter Three. These good practices were not followed onboard the *Spirit of Boston.*

4.4.3.5. Other industry safety guidelines were reviewed during this investigation which contain these admonitions regarding canister type heating fuel safety:

*Solid alcohol (*Sterno®*) heating of food is permitted provided that the following precautions are taken to prevent ignition of combustible material and ensures the safety of occupants.*

Sterno® *fuel use shall be attended at all times by a member of the catering staff who has been trained in* Sterno® *use and fire safety. If a non-catered event, an organizer must be designated as a "Firewatch" to ensure this policy is being complied with.*

- *A 10-pound ABC dry chemical extinguisher, or Type K extinguisher, shall be available within ten (10) feet of the serving table or tables.*
- *Use of secondary containers for* Sterno®*, i.e. fuel holders with cover, is mandatory.*
- *Proper tools must be available for the smothering of the flame if needed, i.e. snuffer paddle.*
- Sterno® *must be immediately extinguished when the food tray is empty or no longer used. When the event is over, all* Sterno® *must be extinguished, immediately capped and removed from facility.*

4.4.3.6. Finally, in the last of the exhibit safety guidelines there is this note about the disposal of Sterno®:

> *Disposing:*
> *Canisters with remaining contents must be properly disposed of at one of the* Sterno® *disposals on campus. Reach out to EHS for disposal locations. Canisters that are completely empty with no flammable residue may be disposed of in regular trash or recycled.*

4.4.4. ***New Hire Orientation***

4.4.4.1. The company provides New Hire Orientation training to employees, both marine and hospitality. Usually, this training is provided after the personnel are hired. Records provided by the company were incomplete and the company did not keep records of the vessel specific orientation that was conducted on a particular vessel. These vessel specific orientation training opportunities can enhance the understanding of an employee about the specific location of safety equipment, including fire extinguishers, fire blankets, and other safety equipment. In the case of two of the direct eyewitnesses to the fire on the vessel, two of the three witnesses stated in interviews that they did not receive this training. The Server Assistant[25] who first saw the smoke talked about the New Hire Orientation training:

> *Q. Uh, you had mentioned in your first interview that you had received training or orientation on how to use a fire extinguisher. Is that correct?*
> *A. Yeah, in the beginning.*
> *Q. OK. So that was during an orientation training.*
> *A. That was yet very in the beginning because I've been. I was there a year in May, so that was long ago.*
> *Q. OK. And after that orientation, there was no other training then about the use of fire extinguisher that you've received either in classroom setting or on board the vessel.*
> *A. Not that I attended.*

4.4.4.2. The orientation training is typically delivered in a presentation that includes several slides that cover such topics as fire safety, donning a life jacket, persons overboard, and security. The slide for fire safety is reproduced in Figure 16. There is no separate slide for marine crew versus hospitality staff, such as server's assistants and bartenders. Under the bullet point, "*extinguish the fire*" there is the notation ("*if possible"*) and the slide also contains the verbiage, "*use a fire extinguisher only if you have been trained to use it."*

[25] CG 026_1 - Interview Transcripts Combined NTSB Produced_Redacted, Server Assistant

4.4.4.3. The Galley Supervisor[26], who at the time of the fire was employed by City Cruises less than six months, was asked about the New Hire Orientation stated:

> *Q. Okay. When you were hired by City Cruises did you receive an orientation training or a pre-employment training?*
> *A. Yes, I did.*
> *Q. Okay. And can you describe to me what that training was?*
> *A. The training consisted of modules which we went through and I had to watch some videos, it pertained to multiple different things.*
> *Q. Okay. Did any of those things have to deal with how to treat your employees?*
> *A. Yes.*
> *Q. Did they deal with how to -- you know, proper galley etiquette or, you know, those types of situations?*
> *A. Yes.*
> *Q. Did any of them have to do with safety, fire safety on board the vessel?*
> *A. No.*

4.4.4.4. The Galley Supervisor stated that he had never been trained on how to fight a fire in the galley.

4.4.4.5. The Senior Restaurant Manager, who witnessed the fire, was asked about a demonstration by company personnel on safety demonstrations aboard the vessel:

> *Q. I just want to be clear. So in your experience, the marine crew at any point, did they -- of any of the vessels, did they incorporate you with like safety demonstrations?*
> *A. No, I don't recall safety demonstrations. I mean they've always been there to take care of whatever was going on.*
> *Q. And as a crew person on the Spirit of Norfolk [sic] that night, what did you understand you were supposed to do if you saw a fire?*
> *A. Nothing. Get out of there. I don't mean it that way. Just like I'm not a firefighter.*

[26] CG 026_1 - Interview Transcripts Combined NTSB Produced_Redacted, Galley Manager

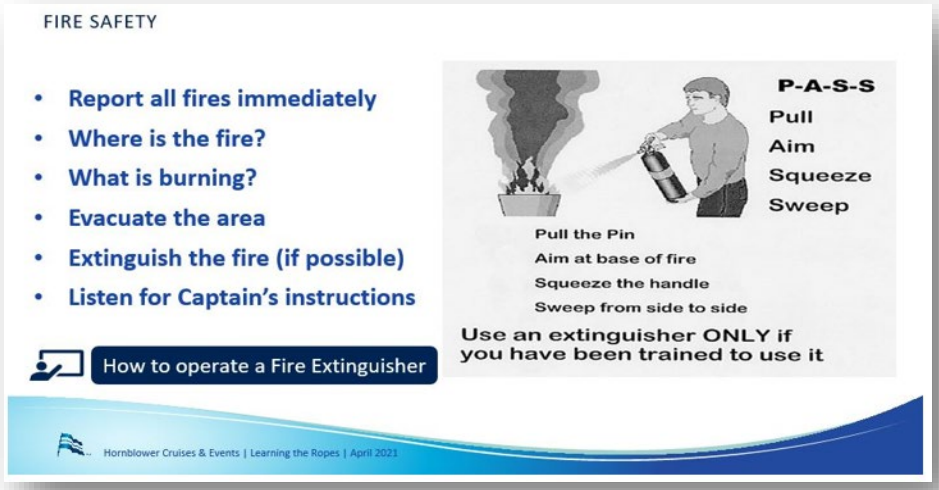

Figure 16- Slide for the fire safety portion of new hire orientation showing the expectations for employees in the case of a fire. There is a subset of this slide that provides for a demonstration on the use of a fire extinguisher. (Source: City Cruises)

4.4.5. ***Shipboard Safety Drills***

4.4.5.1. In compliance with company policy and Coast Guard regulations, the company conducted drills on the *Spirit of Boston* such as fire drills, man overboard and a host of other drills. The drills are logged in the company computer system and are required to be logged in the vessel logs. The marine crew, including the vessel's captain, routinely trained and drilled for vessel emergencies such as fires. Based on company policy when marine crew are aboard, hospitality personnel would notify the marine crew of an emergency and the marine crew would respond to the emergency, be it fire, abandon ship or another emergency. There are established protocols with checklists in the wheelhouse and in the Emergency Response Plan for marine crew in response to fire, collision, and other emergencies.

4.4.5.2. The Senior Restaurant Manager who worked exclusively on the *Spirit of Boston* for her six-and-a-half-year employment stated, when asked, that she had not participated in any drills. The drills on a vessel are designed to test and train vessel personnel on what to do in any conceivable shipboard emergency.

4.4.5.3. The Director of Food and Beverage[27] who oversees the operations of the hospitality crews on all the Boston dinner vessels was asked about the conduct of fire drills recently:

> *Q. Perfect, thanks. And thank you for those answers. So with 25 years of experience, the majority of the experience was on board the vessel acting as a -- you know, a bartender, a server, an assistant, you know, everything for the most part with regard to*

[27] CG 026 - Interview Transcripts Combined NTSB Produced_Redacted, Director of Food and Beverage

what you did. Have you ever participated in a fire drill on board a vessel of City Cruise's?
A. A fire drill?
Q. Yeah.
A. Pre-COVID, we did have them. It's been a while since we've had an actual fire drill with staff on board. But we used to do them, yes.

4.4.5.4. The investigation interviewed a Server[28] who worked for the company (City Cruises and Boston Harbor Cruises) for 25 years and extensively on the Boston dinner boats:

Q. Have you ever received any other -- in those 25 years, or maybe even when you just got specifically like transferred to the Spirit of Boston, did you receive any kind of training from the company on anything regarding safety or what to do in the event of an emergency, anything like that.
A. Every cruise, we have a safety announcement when they tell us where all the lifejackets are, where the rings are, where the emergency exits are. For the most part, that's pretty much what we get in terms of training. So that's what we go with.
Q. So the safety announcement?
A. Um-hum.
Q. Was there anyone -- I know you said -- you mentioned in there lifejackets. Did you anyone ever show you or like the wait staff how to don lifejackets or -
A. No.
Q. -- how to use a fire extinguisher?
A. No.
Q. Have you ever participated in any of your other vessels as well, that you've worked with Hornblower, have you ever participated in any fire drills on board the vessel?
A. We've done a couple, yes. Just essentially what -- where to push people forward, lead people a different way. Just the right of ways where everybody should be going in case there's a fire on the deck. That was a while back, probably about 10 years ago.
Q. Okay. That was the last one --
A. Um-hum.
Q. -- that you participated in personally?
A. That I participated in, yeah.

4.4.5.5. In the case of a fire, leading to a vessel evacuation, the Restaurant Manager is assigned a role as indicated in the fire emergency placard in the vessel wheelhouse.

[28] CG 026_1 - Interview Transcripts Combined NTSB Produced_Redacted, Server

Restaurant Manager: Supervise restaurant staff as directed by the captain. Stay in constant communications with the captain. Be prepared to muster passengers for evacuation.

4.4.6. ***Vessel Specific Safety Equipment Training***

4.4.6.1. Hospitality employees described vessel specific safety training where they would be shown the fire and lifesaving equipment on the individual vessel, in this case, the *Odyssey* also in Boston Harbor. This would include location of fire extinguishers and fire blankets. Server Assistant 1[29] had only worked on the *Spirit of Boston* a handful of times. was asked:

> "*Q. Have you ever received training on the Odyssey on where fire extinguishers are?*
> *A. Yes, we have.*
> *Q. Did you ever receive training on the Spirit of Boston where the fire extinguishers are?*
> *A. No*

4.4.6.2. In an interview[30] with the Associate Restaurant Manager who witnessed the fire, he was asked about training with a fire extinguisher and recounted:

> *Q.* "*Can you tell me of what you recall of how they demonstrated the use of fire extinguisher?*
> *A. There wasn't.*
> *Q. There wasn't. Not in the specific presentation that you were required to do, correct?*
> *A. No.*
> *Q. So now you get on the vessel, first time. At what point do you recall a marine crew giving you like a walk through the vessel to explain the location of say -- I'll just call it safety equipment, but I'm primarily -- I don't care about man overboard. I care about fire. When did that happen?*
> *A. It didn't.*

[29] CG 026_1 - Interview Transcripts Combined NTSB Produced_Redacted, Server Assistant 1
[30] CG 026_1 - Interview Transcripts Combined NTSB Produced_Redacted, Associate Restaurant Manager

4.4.7. *Annual Personnel Performance Appraisals for Full Time Employees*

4.4.7.1. The Investigation requested personnel files for the persons directly involved in the fire. The company provided personnel records to the Investigation. Full time employees are supposed to have a formal appraisal of their performance on an annual basis and employees are supposed to sign the document. None of the personnel files contained the required annual performance appraisals required by company policy, to include the Senior Restaurant Manager who had worked for the company for 6.5 years at the time of the accident and she was the senior decision maker during the event.

4.4.8. *Activation of the Vessel Fire Doors Between the Upper Deck and the Main Deck*

4.4.8.1. The vessel was designed and fitted with fire doors to limit the spread of fire between the main deck and the decks above. In the event of a fire, a person could activate the door closure by operating a pull station near the doors or from the wheelhouse. When activated, the doors would close quickly to limit the spread of fire. The Senior Restaurant Manager knew of the location of the doors and had been working on the vessel for 6.5 years. In her interview she stated:[31]

> *Q. Do you know where the fire doors are? On the Spirit of Boston.*
> *A. Yes.*
> *Q. And where would that be?*
> *A. There's two that I know of. They're both like above a staircase.*
> *Q. And has anybody ever explained to you in training or just pointed out how to use the fire doors? How to activate them in an emergency?*
> *A. No, we've been instructed not to touch them that only the marine crew can.*

4.4.8.2. During the response to the fire, the doors were not closed to limit the extent of the fire. There were more fire doors on the vessel than the Senior Restaurant Manager was aware of.

4.4.9. *Drug/Alcohol Testing of Persons Directly Involved in the Accident*

4.4.9.1. Despite the fact that marijuana use for medical and recreational use is legal in the Commonwealth of Massachusetts, drug use is prohibited by Federal Law aboard commercial vessels of the United States.

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[31] CG 026_1 - Interview Transcripts Combined NTSB Produced_Redacted, Senior Restaurant Manager

4.4.9.2. The company conducted post-casualty drug testing on the persons directly involved in the fire event, as stipulated in applicable regulations. The company's drug and alcohol policy in the Employee Handbook[32] states the following:

> *Employees who are under the influence of illegal drugs or alcohol on the job compromise the Company's interests and endanger their own health and safety and the health and safety of others.*
> *To further its interest in avoiding accidents, to promote and maintain safe and efficient working conditions for its employees, and to protect its business, property, equipment, and operations, the Company has established this Policy regarding the use of alcohol and illegal drugs.*
>
> *A verified positive test will result in a termination of employment in violation of this policy.*

4.4.9.3. In 2016, the Senior Restaurant Manager acknowledged the company's drug and alcohol policy in her acknowledgement form, located in her personnel file. In the second interview, she stated she was not aware of the policy.

4.4.9.4. Following the accident on March 24, 2023, personnel directly involved were tested for the use of dangerous drugs using a certified laboratory. The Senior Restaurant Manager, the senior person on the vessel responsible for the safety of personnel and the vessel, tested[33] positive for the presence of marijuana, THC.

4.4.9.5. In a second post-accident interview[34] the Senior Restaurant Manager was asked about her drug test result. She stated she used marijuana for medical reasons but did not have a physician's prescription. She also stated her last use of marijuana was *"almost a week"* before the fire. She was asked if she was impaired:

> *"Q. So the night of the fire, were there any other substances in your system that might have impaired your critical decision making or the actions that night?*
> *A. "No."*

4.4.9.6. The previous question included impairment due to prescriptions and over the counter medications. At this time, routine drug tests indicate that the subject had used marijuana or other dangerous drugs, as indicated by the presence of markers for drugs in a person's system. In the case of marijuana, the typical post-accident drug test will not tell investigators if the individual was impaired by the effects of the drugs at the time of the incident.

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[32] CG 030 - Employee Handbook 2021
[33] CG 016 - Restaurant Manager Positive THC Drug Test Result
[34] CG 026_1 - Interview Transcripts Combined NTSB Produced_Redacted, Senior Restaurant Manager

4.4.9.7. A company representative called the Senior Restaurant Manager and asked if the positive drug test was medical marijuana. There were no follow up questions from the company representative. She confirmed that there was no further follow up, to her knowledge, there was no investigation or any other actions from the company. The company did not enroll the Senior Restaurant Manager in a random drug testing program.

4.4.9.8. In an interview with the Co-Chief Operating Officer, he was asked about the policy regarding a positive drug test:

> *"Q. So what happens if an employee on the vessel that works on the vessel test positive? For what is typically a dangerous drug such as marijuana.*
> *A. Well, if they're in a marine or safety sensitive position, some sort of remedial action, you know, is taken. Umm, you know in in the way of disciplinary action termination. You know, depending on what's appropriate."*

4.4.9.9. Following the positive drug test, the Senior Restaurant Manager is still employed by the company. The company policy makes no distinction between marine crew, personnel with safety sensitive positions, or hospitality workers in its written drug and alcohol policy.

4.4.9.10. There was no alcohol testing conducted on any individual onboard the *Spirit of Boston* on March 24, 2023, including those individuals determined to be directly involved. Eight hours had elapsed prior to determining which individuals would be required to alcohol test and most of those individuals requested had been released from their work shift. The company was asked to provide a statement as to why alcohol testing was not conducted following the incident as required by law. The company statement was:

> *"In consultation with responding Coast Guard personnel, including marine casualty investigators, no drug or alcohol testing was either requested by investigators or performed on the evening of the incident because the incident occurred after the cruise had ended and did not involve any crew serving in a safety sensitive position. Later that evening, the Coast Guard did request that post casualty drug testing be performed. In response to this request, City Cruises identified and drug tested those crew members that were deemed to be directly involved in the incident."*

4.4.10. ***Safety Sensitive Positions***

4.4.10.1. On the evening of March 24, 2023, aboard the *Spirit of Boston*, there were no marine crew aboard and the Senior Restaurant Manager was the senior company person aboard. Upon identification of an emergency situation aboard, the small fire on the deck of the wait station, she had to make a decision directly related the safety of personnel and the vessel. To attempt to extinguish the small fire with close at hand fire extinguishers or order the evacuation of the vessel.

4.4.10.2. The company provided, 2016 version, of the Emergency Response Plan talks about the role of the Restaurant Manager:

> *RESTAURANT MANAGER:*
> *Primary responsibility is passenger safety. Performs the following duties:*
> *1. Maintain constant communication with the PIC, execute and relay orders and direct the restaurant staff as needed*
> *2. Act as, or assign, deck leader from restaurant staff to communicate orders*
> *3. Coordinate needs for First Aid & CPR with trained crew and if needed, identify individuals outside of crew, trained in First Aid & CPR, and have these individuals tend to the injured*
> *4. Passenger management - keep passengers calm, informed and organized in manageable groups with assistance from restaurant service staff.*
> *5. Verify passengers & crew are accounted for during an evacuation*
> *6. Assist with or complete incident reports and/or keep a record of all details pertaining to injured persons and recording of witness statements.*

4.4.10.3. City Cruises provided the investigation an outdated version of the Emergency Response Plan[35] in response to a subpoena. In that outdated version, the following provides insight into the corporate structure:

> *Entertainment Cruises Structure:*
> *Local operations are typically comprised of Administrative and Sales Department functions that are office based, along with a vessel component, comprised of the marine and restaurant departments. The marine department operates the vessels in compliance with U.S. Coast Guard regulations, maintains the operational aspects of the vessel, and acts as first responder in emergency situations. The restaurant department operates the food & beverage and entertainment elements of cruises and provides a support role to the marine department during emergency situations.*

[35] CG 019 - Emergency Response Plan 8_15_16_Redacted

4.4.10.4. In the current 2021 Emergency Response Plan[36] submitted for the *Spirit of Norfolk* fire investigation, the plan discussed potential "safety sensitive" issues related to restaurant personnel:

> *City Cruises Structure:*
> *• Local operations are typically comprised of Administrative and Sales Department functions that are office based, along with a vessel component, comprised of the marine and restaurant departments. The marine department operates the vessels in compliance with U.S. Coast Guard regulations, maintains the operational aspects of the vessel. The restaurant department operates the food & beverage and entertainment elements of cruises and provides a support role to the marine department during emergency situations. Safety Sensitive positions that act as first responders in emergency situations are normally filled by qualified marine department personnel, however, properly trained restaurant personnel may fill those positions as needed.*

4.4.10.5. There are placards located in the wheelhouse, in direct view of the person operating the vessel. Figure 17 is the emergency fire procedure placard and it contains the steps to be followed in typical vessel emergencies.

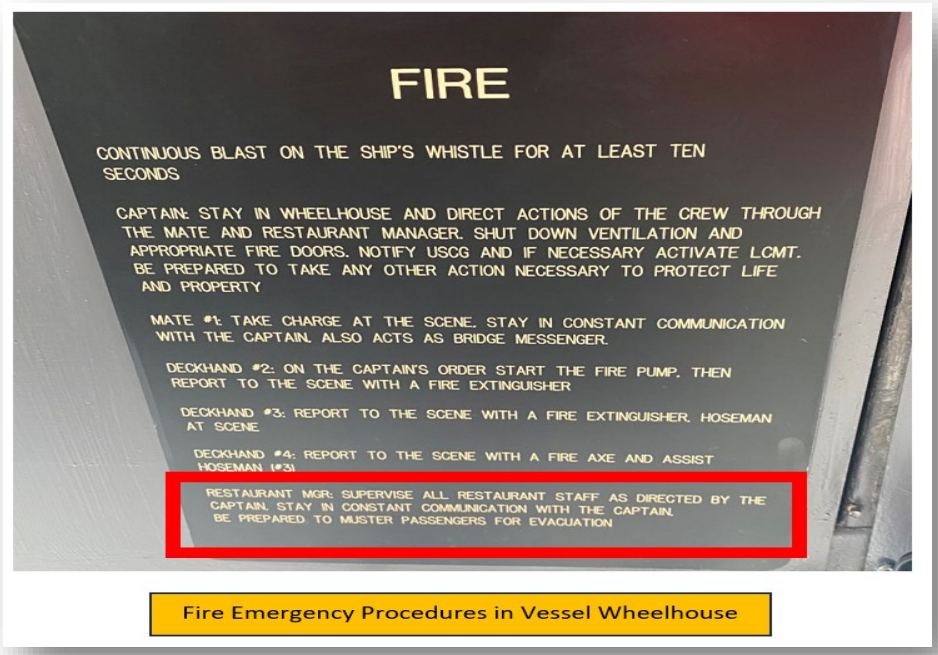


Figure 17 - The procedures to be followed in the event of a fire. This placard is in direct view of the vessel operator in the wheelhouse. The red box outlines the Restaurant Manager duties to "SUPERVISE ALL RESTAURANT STAFF AS DIRECTED BY THE CAPTAIN. STAY IN CONSTANT COMMUNICATION WITH THE CAPTAIN. BE PREPARED TO MUSTER PASSENGERS FOR EVACUATION." (Source: City Cruises)

[36] CG 031 - SPIRIT OF NORFOLK Investigation, Emergency Response Plan 2021 and Appendix

4.4.11. ***Code Phrase Communicating an Emergency***

4.4.11.1. In the minor fire onboard the company vessel *Rendezvous* on June 29, 2023, one of the crew communicated an emergency to the Captain[37] by use of a code phrase:

> "*and a member of the wait staff approached me and told me they were instructed to tell me "code red in the engine room" which means fire to us."*

4.4.11.2. When questioned about the use of an emergency code phrase, personnel in Boston were not familiar with a practice for the hospitality staff to quietly alert the marine crew of an emergency situation on the vessel. Nor were they instructed to use a code phrase in an emergency.

4.4.12. ***Emergency Response Plan***

4.4.12.1. The investigation was provided with a copy of the Emergency Response Plan[38] with a date of August 15, 2016, in response to a subpoena. The *Spirit of Norfolk* fire investigation team was also provided with a similar Emergency Response Plan, dated 2021. The investigation was attempting to determine changes put in place to the Emergency Response Plan as a result of the lessons learned from the *Spirit of Norfolk* fire in June of 2022. There were not changes in the response plan as a result of the devastating fire on the *Spirit of Norfolk.* In the *Spirit of Norfolk* case, the Captain failed to sound the general alarm and/or make public address announcements as required in that plan. In addition, the Senior Restaurant Manager assumed an arguably "safety sensitive" duty by directing the evacuation of the passengers while utilizing the disc jockey to make public address announcements.

4.4.12.2. The company's Emergency Response Plan[39] from 2016 had a host of scenarios for emergency situations and the resultant actions of employees, this included the duties of the Restaurant Manager. The plan detailed what vessel marine crew would do in fire, abandon ship, collision and other risks to the vessel, passengers, and crew. There was no guidance for actions of personnel listed for the typical scenario of the staff securing the dining areas and food prep areas after the marine crew had departed the vessel and the ship experienced a fire, emergency, or other dangerous situation.

[37] CG 021 - Captain Witness Statement RENDEZVOUS Fire Redacted 29Jun2022
[38] CG 019 - Emergency Response Plan 8-15-16 Redacted
[39] CG 019 - Emergency Response Plan Dated 8-5-16

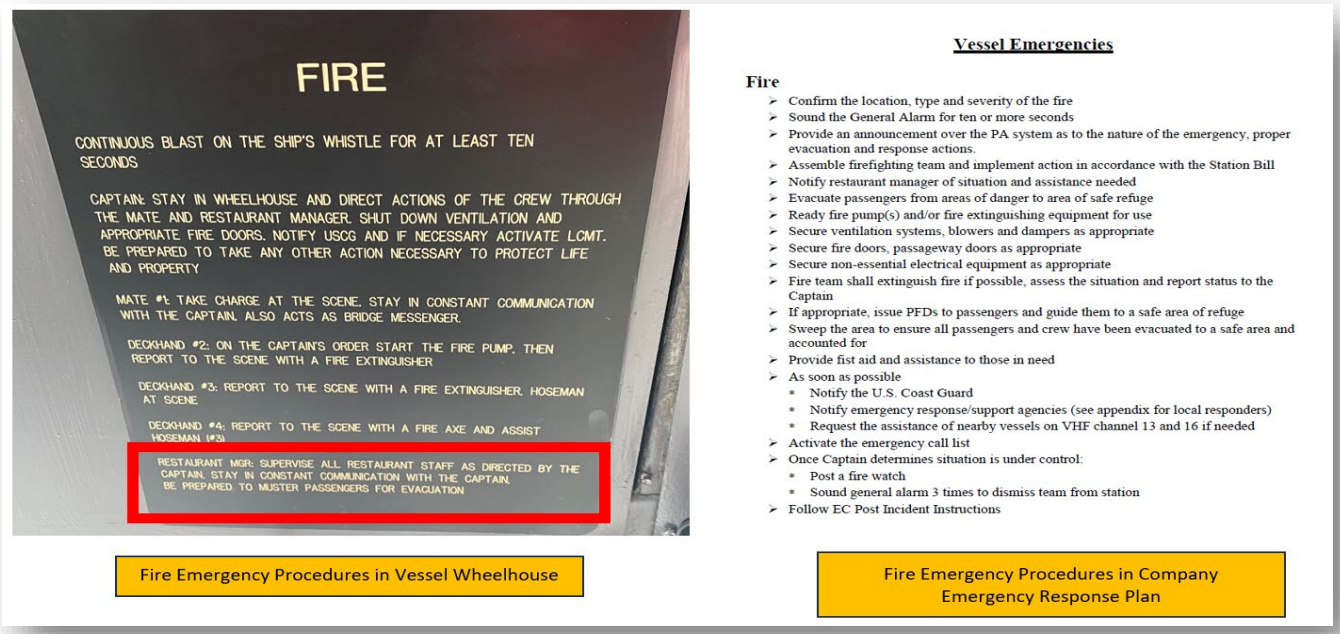


Figure 18 – **Left**: the procedures to be followed in the event of a fire. This placard is in direct view of the vessel operator in the wheelhouse. Note the duties of the Restaurant Manager in the red highlight box.
Right: the procedures that the crew was expected to follow during a fire event, from the "Vessel Emergencies" section of the company Emergency Response Plan, dated 2016 (Source: City Cruises)

4.4.12.3. Neither document contained provisions for responding to the scenario that occurred on March 24, 2022, on the *Spirit of Boston*; where a fire breaks out onboard, no marine crew are present, and only hospitality staff and contactors are aboard. In all the emergency scenarios outlined in the plan, the marine crew would mitigate the emergency.

4.4.12.4. The senior company representative, the Senior Restaurant Manager, that was aboard the vessel during the start of the fire was not aware of the existence of the Emergency Response Plan, even though she worked for the company for 6.5 years at the time of the accident.

4.4.13. ***Company Safety Support for Operations***

4.4.13.1. In extensive interviews regarding the *Spirit of Norfolk* and the *Spirit of Boston* fires, General Managers of their respective operations could not directly identify the person in the corporate organization who was directly responsible for the safety of operations. They both spoke of a "dotted line" relationship where they could turn to a variety of persons who would provide them with safety related decisions. In particular, there is a position in the company, listed in the company organization chart, that is responsible for Regulatory/ Safety/ Security with responsibilities listed as:

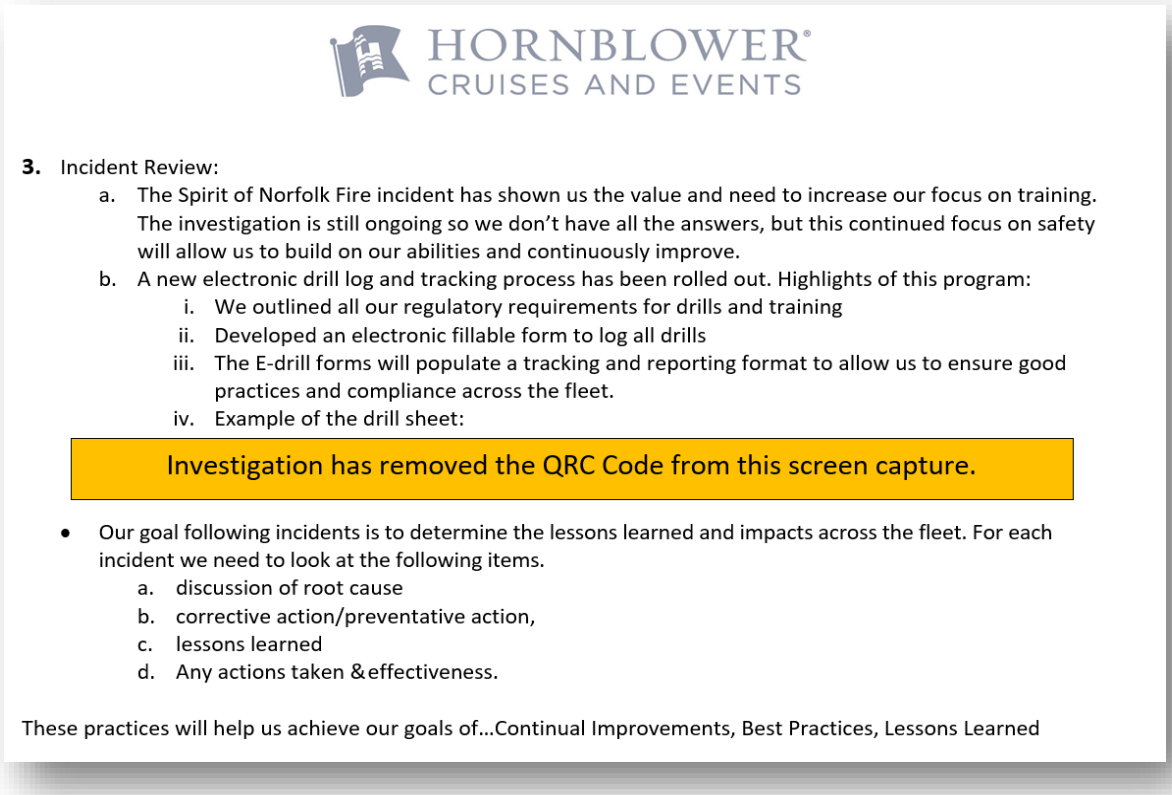
Risk Management/Safety
Risk Management
Incident Oversight
Safety Council
Safety Management System - SMS

Emergency Response Plan - ERP
Environmental Regs
Material Safety Data Sheets – MSDS

4.4.13.2. None of those interviewed identified any member of the National Marine Team as the person to go to for a safety related decision, that needed corporate support outside of the local port management.

4.4.14. ***SafeCruise[40] Meetings***

4.4.14.1. SafeCruise meetings[41] were preceded by agendas, sent out to corporate attendees via email. Boston Dinner Fleet management personnel would participate in these SafeCruise meetings. The incident review agenda item from the *Spirit of Norfolk* fire is shown below:



HORNBLOWER CRUISES AND EVENTS

3. Incident Review:

a. The Spirit of Norfolk Fire incident has shown us the value and need to increase our focus on training. The investigation is still ongoing so we don't have all the answers, but this continued focus on safety will allow us to build on our abilities and continuously improve.

b. A new electronic drill log and tracking process has been rolled out. Highlights of this program:

i. We outlined all our regulatory requirements for drills and training

ii. Developed an electronic fillable form to log all drills

iii. The E-drill forms will populate a tracking and reporting format to allow us to ensure good practices and compliance across the fleet.

iv. Example of the drill sheet:

Investigation has removed the QRC Code from this screen capture.

- Our goal following incidents is to determine the lessons learned and impacts across the fleet. For each incident we need to look at the following items.
  a. discussion of root cause
  b. corrective action/preventative action,
  c. lessons learned
  d. Any actions taken &effectiveness.

These practices will help us achieve our goals of…Continual Improvements, Best Practices, Lessons Learned

Figure 19 - SafeCruise agenda item July 20, 2022, following the *Spirit of Norfolk* fire on June 7, 2022. (Source: City Cruises)

[40] SafeCruise is a Hornblower/City Cruise safety program for fleet operations., managed by the National Marine Team that sets safety and operations standards within company. CG Exhibit 061 contains samples of SafeCruise agendas.

[41] CG 061 - SafeCruise Agenda Items and Meeting Minute Notes can be found in this exhibit.

4.4.14.2. There were no SafeCruise national meetings from September 2022, until the meetings resumed in January 2023, due to travel and schedule conflicts. In their place, each port was to have local meetings conducted by the Port Safety Officer. Policy for these meetings indicates that minutes were to be taken for effective follow up of meeting agenda discussion and follow on actions. No meeting notes were provided to the investigation.

4.4.15. ***Hornblower Fleet Safety Alerts***

4.4.15.1. The company uses Fleet Safety Alerts to notify fleet personnel of important safety issues. In reviewing the evidence provided by the company, there were only two safety alerts. One concerned fuel systems and the other was a transmission safety alert.[42] Both fleet safety alerts were created and distributed as a result of situations that could have caused damage, or an accident, in fleet vessels. In the fleet transmission alert, the situation was described in the following manner:

> *Purpose: To alert CC Marine Shipmates of potential safety hazards with transmissions/clutches on Main Engines onboard vessels.*
>
> *Background: On 2/19/17 as the Spirit of Norfolk was tightening lines following a brunch cruise, a limit pin on the Port Main gear selector backed out (see pictures below). This caused the engine to default to neutral and would not allow the transmission to shift into forward propulsion. The captain on duty performed the standard throttle check prior to docking with no issues.*
>
> *It was reported to the CG and an 835 was issued. The limit pin was discovered on 2/21/17 and reinstalled on the engine.*
>
> *The timing of this was fortunate – had this happened minutes earlier or during approach, the captain would have lost 50% forward propulsion.*

4.4.15.2. There is no evidence that following the fire on the *Spirit of Norfolk* on June 7, 2022, that a fleet safety alert regarding fire safety, fire prevention, or firefighting was issued to the Hornblower fleet.

4.4.16. ***Port Safety Officers***

4.4.16.1. Company documents listed the duties of the Port Safety Officer. The General Manager and Director of Marine Operations were copied on these emails, SafeCruise, and Marine Operations meetings. Duties were listed as:

[42] CG 047 - Hornblower Fleet Safety Alert Transmission Safety

PORT SAFETY OFFICER DUTIES:
• Facilitates Port Safe Cruise Team Meetings
• Manages and assigns execution of regular inspections
• Manages and assigns execution of Hazard Analysis, ensure is being conducted for routine and non-routine activities with associated hazards
• Manages and assigns posting of Port Safe Cruise Meeting Minutes to Corporate
• Reports out Corrective Actions in Corporate Safe Cruise Meetings
• Ensures Incident Reports are properly completed, Root Cause Analysis are performed, Corrective Actions are assigned and followed through to completion
• Attends a 10-hour OSHA Site Worker Certification Training Course
• Assists GM to ensure all departments are conducting pre-shift training talks as per the Corporate Quarterly or ISO Training Talk schedules
• Works with the corporate office and insurance to conduct workplace facility safety inspection for loss control prevention
• Works with GM, HR/ISO Management and Corporate Safety Team, to follow the IIPP and RMS requirements
• Other duties as assigned by GM, HR/ISO Management and Corporate Safety Team

4.4.16.2. The Director of Marine Operations, who is responsible for the safety of operations of the four Boston dinner vessels, including the *Spirit of Boston*, was asked in an interview[43] after the fire:

Q. So, the safe cruise agenda and so forth -- I may get it wrong, because I need to know, not from you, but I need to know what now is. I know what it used to be. But there's a port safety officer, and their duties facilitates port safe crews meeting, manages and executes regular missions, and it goes on and on, conducts incident investigation and so forth. Who is the port safety officer for the Port of Boston for City Cruises?
A. I'm not sure.
Q. Do you know if they're doing -- is -- so, you don't know who it is, but do you know if those type of things are being carried out by anyone?
A. I believe that there's been a port safety officer assigned. I don't know who that currently is. So, I'm not sure what that person's responsibilities are, exactly.

[43] CG 026_1 - Interview Transcripts Combined NTSB Produced Redacted, Director of Marine Operations

4.4.16.3. The General Manager for *Spirit of Boston* was asked to identify the Port Safety Officer in an interview[44], incorrectly identifying the individual:

> *Q. But for the Port of Boston, who is the port safety officer?*
> *A. XXXXXX*[45] (Not the person designated as Port Safety Officer for the Dining Fleet in Boston)

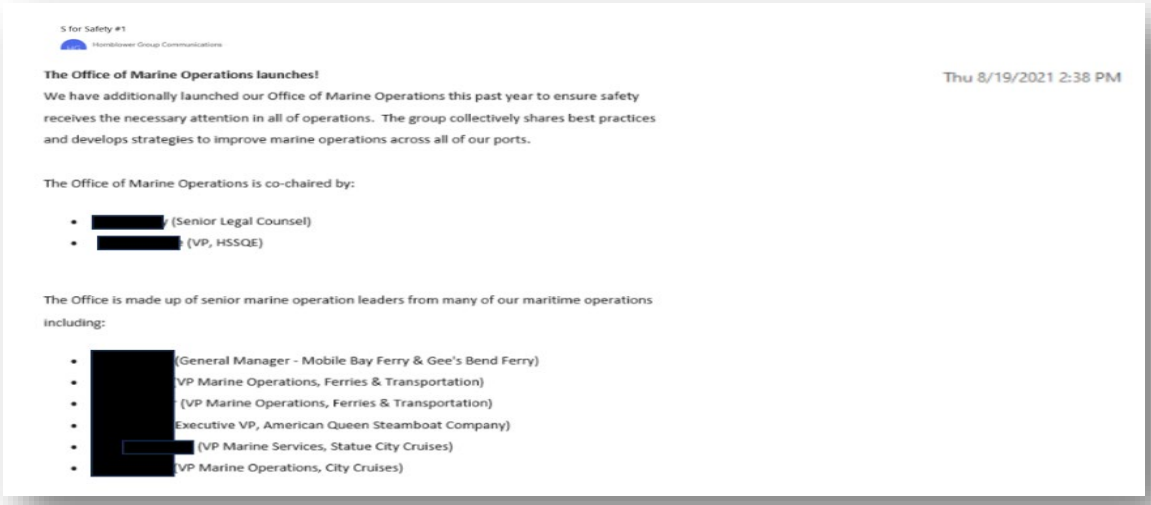
4.4.16.4. Company documents, including the SafeCruise agenda for July 20, 2022, and testimony[46] from the Associate Director of Marine Operations, Dining Division, indicate that the Associate Director of Marine Operations is the Port Safety Officer for Boston Dining Division.\

4.4.17. ***Creation of an Office of Marine Operations 2021***

4.4.17.1. In an email dated August 19, 2021,[47] Hornblower launched the Office of Marine Operations with the stated goal:

> "*We have additionally launched our Office of Marine Operations this past year to ensure safety receives the necessary attention in all of operations. The group collectively shares best practices and develops strategies to improve marine operations across all of our ports".*

4.4.17.2. During the course of the investigation, no company employee or management personnel, mentioned the existence of this office.



S for Safety #1
Hornblower Group Communications

The Office of Marine Operations launches! Thu 8/19/2021 2:38 PM

We have additionally launched our Office of Marine Operations this past year to ensure safety receives the necessary attention in all of operations. The group collectively shares best practices and develops strategies to improve marine operations across all of our ports.

The Office of Marine Operations is co-chaired by:

- [redacted] (Senior Legal Counsel)
- [redacted] (VP, HSSQE)

The Office is made up of senior marine operation leaders from many of our maritime operations including:

- [redacted] (General Manager - Mobile Bay Ferry & Gee's Bend Ferry)
- [redacted] (VP Marine Operations, Ferries & Transportation)
- [redacted] (VP Marine Operations, Ferries & Transportation)
- [redacted] (Executive VP, American Queen Steamboat Company)
- [redacted] (VP Marine Services, Statue City Cruises)
- [redacted] (VP Marine Operations, City Cruises)

Figure 20 - Portion of an email, dated August 19, 2021, launching Hornblower Office of Marine Operations, showing the lines of business represented in the team makeup. (Source: City Cruises)

[44] CG 026_1 - Interview Transcripts Combined NTSB Produced_Redacted, General Manager
[45] Redacted
[46] CG 026_1 - Interview Transcripts Combined NTSB Produced_Redacted, Associate Director of Marine Operations
[47] CG 046 - Launch Hornblower Office of Marine Operations

4.4.18. *Smoking Policies Aboard the Spirit of Boston*

4.4.18.1. Witnesses interviewed stated there was no smoking for guests aboard the vessel unless the vessel was under a private charter and the charter party would allow smoking. There was some ambiguity regarding if it was okay for the crew to be smoking onboard. After the fire, investigators located signage and evidence of cigarette use on the after main deck of the vessel.

4.4.18.2. Investigators were keen to determine the policy or practices revolving around vape pens, also known as electronic cigarettes, in use on the vessel by passengers and crew. In certain instances, these electronic devices have exploded, causing damages and burns to the users. None of the witnesses interviewed could recall seeing these electronic devices being charged onboard the vessel and no one was reported to be using those types of devices on the evening of the fire. The description of the initial fire as creating amber sparks and the sound of released compressed gas, can be like the characteristics of an electronic cigarette when the typical lithium-based battery has a thermal overload resulting in fire or explosion.

Figure 21 - Red circled objects are cigarettes located after the fire on the main deck and in rubbish from the vessel. **Right**, signage on the inside of the port main deck bulkheads indicating shipboard policy regarding cigarette butts. (Source: Coast Guard)

4.4.19. ***Incident Reporting and Company Investigations***

4.4.19.1. The company has a procedure[48] in place to identify incidents and then investigate to come up with lessons learned to prevent future occurrences. The company has its own definition of a Serious Marine Incident:

> *Serious marine incident is identified, as the death, serious injury to a person, a vessel fire, grounding, flooding, collision, mechanical failure, structural failure, pollution incident, and all other incidents with the potential to negatively impact or disrupt normal operations.*

4.4.19.2. The Director of Food and Beverage[49] was aboard the *Odyssey* on May 29, 2021, when a burning vessel drifted down on the moored *Odyssey* with passengers aboard:

> *We actually had that happen on Odyssey last year, there was a boat fire outside of our boat, one of the boats in the field had caught fire and came towards the vessel and we had to evacuate the Odyssey, and the staff did a great job of directing people to the correct way. Because they couldn't get off the stern of the vessel, they sent them down through the galley off our -- off of our cargo door area and got everybody off the vessel safely. So, I saw that in action just last year where everybody did the proper thing.*

4.4.19.3. The Regional Vice President and General Manager for the Port of Boston was asked about the application of the definition of "serious marine incident" in their interviews[50], particularly as it related to the event(s) that took place on the *Odyssey,* whereby there was a marine casualty on May 29, 2021 in Boston Harbor:

> *Q. So on May 29th, 2021, there was an evacuation of passengers while the Odyssey was moored as a burning sailboat was drifting down towards the general vicinity of the Odyssey. Based on that definition and your understanding, would that be a serious marine incident?*
> *A. No.*
> *Q. So did it negatively impact or disrupt normal operations by evacuating all passengers from the vessel ashore?*
> *A. I guess it impacted those passengers, I don't know if it negatively impacted -- if I remember correctly, I believe we were able to board not long after that and the cruise went out as normal.*

[48] CG 043 - City Cruises Port Safety Officer and Incident Investigation Procedures
[49] CG 026_1 - Interview Transcripts Combined NTSB Produced_Redacted, Director of Food and Beverage
[50] CG 026_1 - Interview Transcripts Combined NTSB Produced_Redacted, Boston VP of Operations

Q. Do you know if an incident was logged into your IndustrySafe tracking program and an investigation was conducted? In this case, perhaps best practice.
A. I couldn't tell you without looking to see if there was a incident, if anything was logged into IndustrySafe.
Q. Do you know -- go ahead, Mr. XXXX,[51] *I'm sorry.*
A. I was going to say if the incident didn't happen on board our vessel, it happened to another vessel and nobody was hurt, nobody was injured and the cruise went out as normal, then I don't know that anything would've been logged.
Q. Do you think that the proactive step of evacuating passengers as a safety precaution is a positive lesson learned?
A. Absolutely.

4.4.19.4. The Coast Guard requested that the company provide the incident records, as well as a video of the burning vessel drifting down on the moored vessel *Odyssey*. Server Assistant 1[52] stated that the drifting and burning vessel ultimately bumped into the *Odyssey*. She was a member of the hospitality staff on the *Odyssey* on May 29, 2021, and she stated in her interview:

Q. And then something caught my attention, you mentioned the Odyssey and the burning sailboat that occurred, you said May 29th, but it might've been March 29th.
A. No. I remember it was right before Memorial Day.
Q. Yeah. And you had mentioned it ran into the Odyssey in this interview here.
A. Yeah, it bumped us.
Q. Okay, that's the first time I heard that, that the sailboat was on fire, and it actually bumped into the Odyssey.
A. Yeah, we had to evacuate our boat, too, we had to cancel the cruise.

4.4.19.5. This event involved a fire, an allision with a drifting and burning vessel while the *Odyssey* was moored at the dock, an evacuation of passengers, and the cancellation of the cruise.

[51] Redacted
[52] CG 026_1 - Interview Transcripts Combined NTSB Produced_Redacted, Server Assistant 1, Pg. 1056

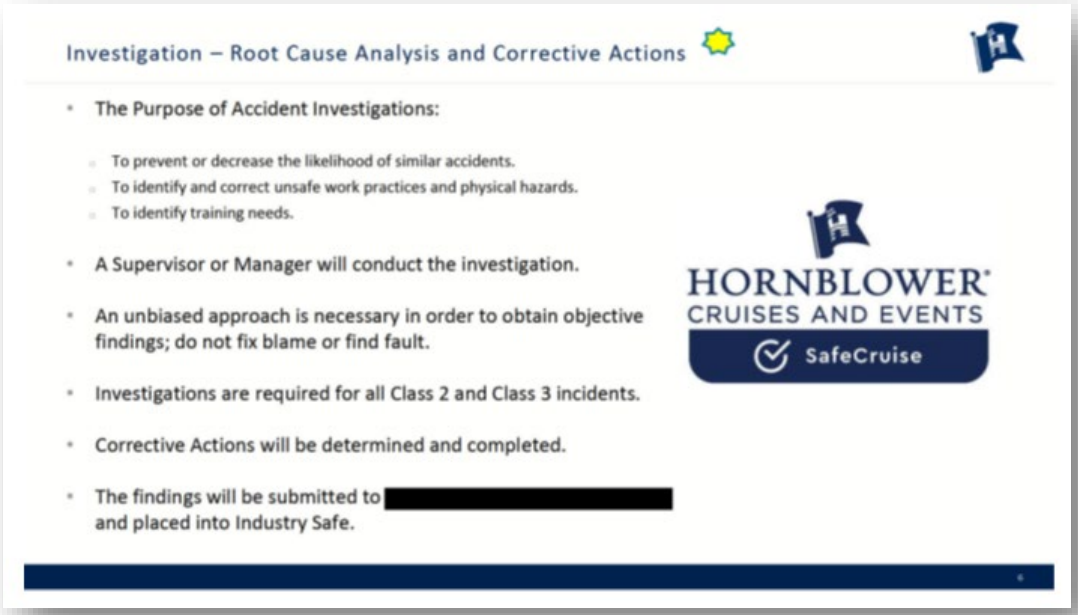


Figure 22 - Slide from a SafeCruise presentation on Port Safety Duties and Investigation, Root Cause Analysis and Corrective Actions (Source: City Cruises)

4.4.19.6. In examining the SafeCruise and Office of Marine Operations (Marine Ops) agendas provided to the investigation, there was no evidence that the *Odyssey* incident on May 29, 2021, nor the *Rendezvous* generator fire on June 29, 2022, were the subjects of discussion on the national level in SafeCruise or the Office of Marine Ops meetings. In both these incidents, the excursion vessels evacuated passengers. In the *Odyssey* incident, the cruise was cancelled, and passengers were moved to another vessel. During the *Rendezvous* incident, the passengers went out on another cruise as well. Both incidents as stated in the company's serious marine incident definition disrupted or negatively impacted routine operations. Both types of meetings require meeting minutes as per company policy. The investigation requested the meeting minutes for the Marine Ops meeting at the national level. Only brief handwritten notes were provided to the investigation and only for the Boston dining vessels. The investigation was not able to uncover information related to the *Spirit of Baltimore* small galley electrical fire on June 10, 2022, or the *Salacia* engine room fire on August 8, 2021, until after the preliminary investigation was complete. Company policy states, "all incidents are to be reported no matter how minor." And later "PSO or DMO transfers info into Industry Safe and submit handwritten form to (redacted)". A search of records provided by the company did not yield any information regarding these incidents in meeting agendas, Industry Safe, or other provided evidence.

4.4.19.7. The following is a sample agenda for the SafeCruise meeting agenda[53] for August 17, 2022:

3. *Incident Review:*
   FY22- 00339 &341 – Security incidents
   FY22 – 00239 – Rail Jumper – USCG rail jumper discussion.
   Multiple – guest intoxication incidents across the fleet.
   Multiple allision incidents generally around docking or departure.
   Vessel electrical/gen set issues – Philadelphia, Baltimore, San Francisco Spirit - additional safety/maintenance standdown.

   - *Our goal following incidents is to determine the lessons learned and impacts across the fleet. For each incident we need to look at the following items.*
     a. discussion of root cause
     b. corrective action/preventative action,
     c. lessons learned
     d. Any actions taken &effectiveness.

   These practices will help us achieve our goals of…Continual Improvements, Best Practices, Lessons Learned

4.4.19.8. Investigators attempted to examine the incident reporting, analysis, and corrective actions to determine the viability and health of the company safety culture. Following the identification of an incident, the following flow chart shows the steps that company personnel are to follow to determine corrective actions and ensure the safety of operations:

[53] CG 039 - SafeCruise Agendas Jul22 - Mar23

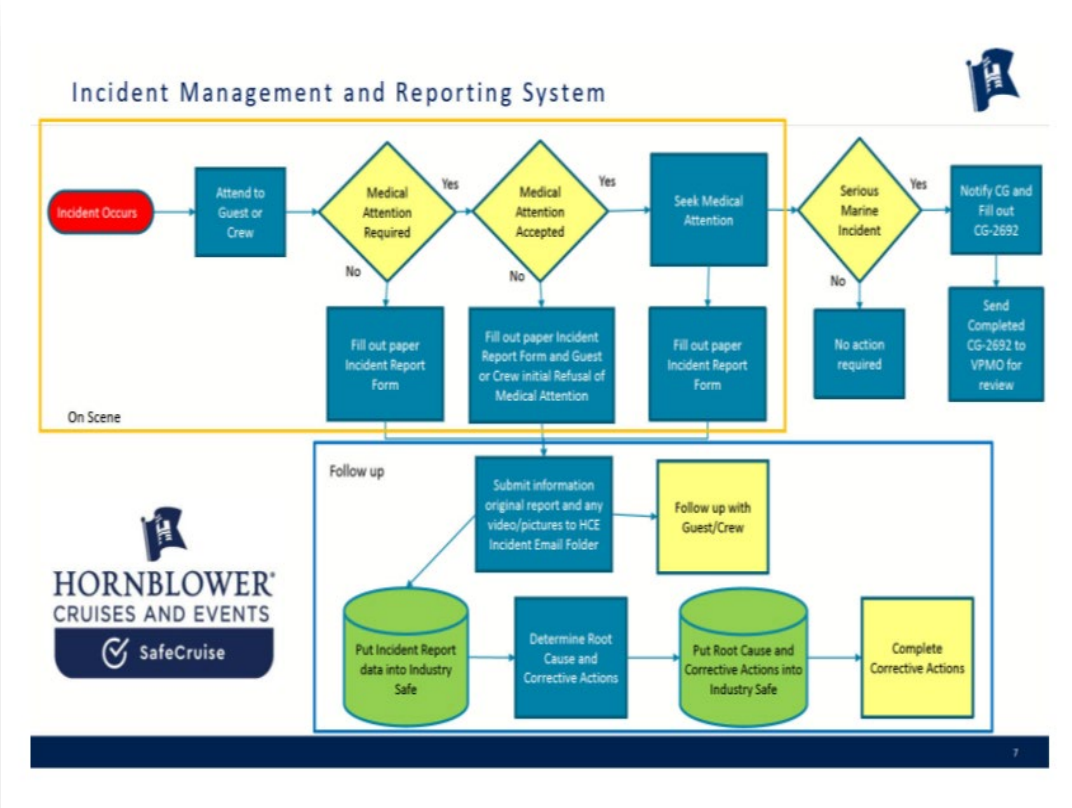


Figure 23 - Flow chart showing the steps company personnel are to follow after an incident had been identified. (Source: City Cruises)

4.4.19.9. The company provided the flow chart (Figure 23) outlining corrective actions. This flow chart is based on a request from the *Spirit of Norfolk* investigation as was discussed in the Formal Investigation Public Hearing. The flow chart does not appear to outline a follow-on process to place data into the company database for the report after a serious marine incident occurs. That data could be used to determine the root cause or corrective actions, input the root cause and corrective actions in Industry Safe, and then complete the corrective action process.

4.4.20. ***Lack of a Safety Management System (SMS)***

4.4.20.1. Certain divisions of Hornblower did have an SMS in place based on the requirement of the customer and required in contracts with those customers. Currently, an SMS is not required for the *Spirit of Boston* and the ISM Code[54] is not applicable to the type, service, and class of the

[54] The International Safety Management (ISM) Code is an international standard for the safe operation of ships and for pollution prevention. Chapter IX of the International Convention for the Safety of Life at Sea (SOLAS) requires compliance with the ISM Code. In 1998, the ISM Code became mandatory for three types of vessels, regardless of the date of construction:

vessel. City Cruises did not utilize a SMS to ensure the safety of operations for the large dinner vessels, which with their total passenger and crew capacity were small ships. According to the Coast Guard the functional elements of a SMS are listed here:

> *The functional requirements of a safety management system must include -*
>
> *(a)A written statement from the responsible person stating the company's safety and environmental protection policy;*
> *(b)Instructions and procedures to provide direction for the safe operation of the vessel and protection of the environment in compliance with the applicable U.S. Code of Federal Regulations, and international conventions to which the U.S. is a party (SOLAS, MARPOL, etc.);*
> *(c)Documents showing the levels of authority and lines of communication between shoreside and shipboard personnel;*
> *(d)Procedures for reporting accidents, near accidents, and non-conformities with provisions of the company's and vessel's safety management system, and the ISM Code;*
> *(e)Procedures to prepare for and respond to emergency situations by shoreside and shipboard personnel;*
> *(f)Procedures for internal audits on the operation of the company and vessel(s) safety management system; and*
> *(g)Procedures and processes for management review of company internal audit reports and correction of non-conformities that are reported by these or other reports.*

4.4.20.2. One frequent role in an SMS is a position often referred-to as the "designated person ashore" (DPA). The role is outlined in ISM code as:[55]

> *DESIGNATED PERSON(S)*
> *To ensure the safe operation of each ship and to provide a link between the company and those on board, every company, as appropriate, should designate a person or persons ashore having direct access to the highest level of management. The responsibility and authority of the designated person or persons should include monitoring the safety and pollution prevention aspects of the operation of each ship and to ensure that adequate resources and shore based support are applied, as required.*

---

[54] International Safety Management Code, IMO Resolution A.741(18) 1993, DESIGNATED PERSON(S)

- Passenger ships including passenger high-speed craft on international voyages, not later than July 1, 1998.
- Oil tankers, chemical tankers, gas carriers, bulk carriers and cargo high-speed craft of 500 gross tonnage and upwards on international voyages, not later than July 1, 1998.
- Other cargo ships and mobile offshore drilling units of 500 gross tonnage and upwards on international voyages, not later than July 1, 2002.

4.4.20.3. In interviewing company personnel, no one could identify the person who fulfilled this role. They identified "dotted line" relationships between the National Marine Team and within the local company division, all standing by to assist with the operational safety concerns of the company. There was in essence, no "Designated Person" as defined in the ISM code. Though not required by law, similar sized companies utilize the ISM code minimize risk and increase overall safety of the fleet.

4.4.21. *Actions of Company Personnel and Contractors on the Accident Night*

4.4.21.1. After the marine crew switched over to shore power, they departed the vessel, followed by the galley personnel, also known as back of the house staff. The hospitality staff, also known as front of the house staff, remained aboard the *Spirit of Boston* to clean up after the previous cruise and prepare for the next day. In addition to the hospitality crew, there were two contractors aboard, these were disc jockeys.

4.4.21.2. The front of house staff was clearing off tables in preparation for the next day's cruise on the main deck. Testimony would indicate that they would take all the paraffin candles, partially empty, empty, or full, to the second deck and deal with them on the next day.

4.4.21.3. On the evening of March 24, 2023, the restaurant staff set up the coffee station in the wait station. The coffee station was usually set up in the dining area, in a self-service style. Server Assistant 2 stated they set up the coffee station in the wait area that evening, due to the high volume of young children on the prior dinner cruise. When diners requested coffee, they would bring the cups of coffee to the table. The coffee pot was kept warm by a lit canister flammable fuel heating source.

Figure 24 - Coffee station setup in the wait station on the evening of March 24, 2023. Image has labels applied by the investigation. (Source: ATF)

4.4.21.4. Two server assistants recounted throwing out canisters that were used to warm coffee at port-side wait stations on the main deck. Both stated they waited for fuel canister(s) to cool after extinguishing them. Both stated that they threw the canister(s) into the trashcan in the wait station. Server Assistant 1 stated that she didn't extinguish the canister; she noted it was seemingly extinguished for approximately 30 minutes before she threw it in the trashcan, after the marine crew had taken out the trash. Server Assistants

stated that she extinguished the fuel canister either by capping it or blowing it out 15-20 minutes before the cruise ended.

Figure 25 - Closed circuit TV footage of the vicinity of the wait station deck (red oval) showing Server Assistant 1 cleaning up an unknown substance spilled on the deck in the wait station before the fire. Far right, shows the server with a rag in hand walking towards the area where she disposed of the rag used for cleanup in a linen bag aft of the wait station. (Source: City Cruises, with CG markups)

4.4.21.5. Shortly before the fire, Server Assistant 1 was seen on the vessel's closed circuit TV camera system on the deck near the wait station, cleaning up a spill on the deck or floor of the wait station area. She stated the liquid on the deck was a small spill the size of a small plate, about 5 inches in diameter. She was asked if it was slippery and she said, "*No, I did not slip on it*" and said that it was clear in color. The spill was in her words, "*It was near where the glasses were stored.* When she finished cleaning, she said the deck was "*dry as a bone.*"

4.4.21.6. Three hospitality workers witnessed the development of the fire. From the observation of smoke in the vicinity of the wait station ceiling, to sparks, and finally the flames on the deck. The Senior Restaurant Manager and Server Assistant 2 briefly discussed using a fire extinguisher. The fire on the deck at this time was ribbon shaped, less than three feet long and two to three inches in height and less than three inches in width.

4.4.21.7. No employee attempted to use the nearby portable fire extinguisher or the fire blanket on the nearby wall in the passageway near the galley or any other means to extinguish or suppress the fire.

4.4.21.8. The Restaurant Managers told the crew and contractors to evacuate the vessel while the Senior Restaurant Manager took accountability for personnel to ensure that everyone was safe and accounted for.

4.4.21.9. Almost simultaneously, the Senior Restaurant Manager used her cell phone to notify management of the emergency aboard. The Associate Restaurant Manager called 911. In his interview, The Associate Restaurant Manager stated that no one trained him or told him to call 911 in the event of an emergency on board the vessel.

4.4.21.10. The personnel waited on the dock clear of the danger aboard. One employee, Server Assistant 2, and a disc jockey ran back aboard the vessel. In the case of Server Assistant 2, he returned to the dock wearing a life jacket. The disc jockey went below to retrieve his laptop with playlists and other business equipment. When he went to the main deck, he regretted his decision, due to the growth of the fire and smoke aboard. No attempt was made to stop these two people from reboarding the vessel after the evacuation, which was then heavily consumed with flames and smoke on the main deck.

4.4.21.11. Once all personnel were safely accounted for, company personnel and fire department personnel arrived at the pier. The vessel Captain returned promptly to the vessel to render assistance to the firefighters beginning to battle the fire aboard.

4.4.22. ***Relevant Small Passenger Fleet Snapshot***

4.4.22.1. Data was pulled in late 2022 related to the circumstances in this investigation and the *Spirit of Norfolk* fire. Some of the significant small passenger vessel fleet statistics for background and industry context (data pulled on 10/10/2022) are provided below. New Title 46 CFR Subchapter T requirements went into force in 1997. Old Title 46 CFR Subchapter T requirements are 1960's era regulations.

4.4.22.2. There are approximately 6,500 Coast Guard certificated small passenger vessels within the US fleet certificated to Title 46 CFR Subchapter T and Subchapter K as outlined in the Code of Federal Regulations.

4.4.22.3. Contained within the total fleet populations there are approximately 2,800 small passenger vessels certificated using primarily old Title 46 CFR Subchapter T requirements or representative of 43% of all small passenger vessels.

4.4.22.4. One of the significant differences between new Title 46 CFR Subchapter T and old Title 46 CFR Subchapter T vessels relevant to this investigation are the fire protection requirements. Below are two major components of the fire protection, specifically fire detection and fixed fire suppression somewhere onboard the vessel (engine room, galley, living quarters, etc.). Requirements differ dependent upon propulsion type and hull type for engine room installations.

4.4.22.5. Between 2011 and 2021 for **ALL** small passenger vessels, there were 135 reportable marine casualties involving a fire, with an estimated total damage amount of nearly $14,000,000.

4.4.22.6. Between 2011 and 2021 for primarily **old Title 46 CFR Subchapter T** regulated small passenger vessels, there were approximately 70 reportable marine casualties involving a fire, with an estimated total damage of $10,500,000.

4.4.22.7. Old Title 46 CFR Subchapter T vessels represent 75% of all fire related damage incurred by the small passenger vessel fleet during this timeframe.

5. Analysis

5.1. Overview

5.1.1. This section outlines the analysis conducted by the investigation. The investigation secured a tremendous amount of evidence during this investigation, including robust witness testimony, which at times, proved contradictory. Due to this fact, the investigation *weighted* the large trove of evidence as appropriate to develop the analysis for this incident. The investigation attempted to author a plain language analysis (there are numerous "gray area" and highly technical issues contained within this analysis). The following represents the key areas of analysis determined relevant to the purposes of the investigation.

- Fire Origin – Physical Descriptions
- Fire Fuel
- Fire Ignition
- Fire Prevention and Fire Safety
- Safety Sensitive Positions
- Risk To Personnel Aboard with No Marine Crew in Attendance
- Fire Mitigation
- Fire Agency Response

5.2. Fire Origin – Physical Descriptions

5.2.1. The area near the aft bulkhead of the wait station forward of the galley on the main deck (port side) was the point of origin for this fire, based upon the totality of the evidence. Below is a sampling of the evidence which validates this focus.

5.2.2. ***The Physical Description and Location of The Initial Fire***

5.2.2.1. *Spirit of Boston* front of house personnel (i.e. hospitality staff) in testimony regarding the area where fire was observed; Server Assistant 2[56] in speaking of the area of the wait station on the port side of the main deck forward of the galley area:

[56] CG 026 - Interview Transcripts Combined NTSB Produced Redacted, Server Assistant 2

"*I came back down. I'm going to check my phone to see if I got a call. I look up around the light, and I can see smoke. I can hear something down below. I look around and I see a spark. It's coming from underneath where we house the glasses which is in a plastic glass bin where they all have their own individual little slots or what have you.*"

5.2.2.2. Server Assistant 2 described the spark as:

"*more like an electric spark, not like what you said earlier. The spark was kind of jumping around under there.*"

5.2.2.3. Once outside the vessel, the Server Assistant 2[57] looked in the wait station window from the dock and made this observation about the fire:

"Q. Could you see anything else through the window that -- other than the flame? Did you see anything else that you can remember?
A. I just -- I'm realizing now it was probably the floor. I thought it was maybe oil or something running down, but the floor was burning.
Q. Um-hum.
A. And then I realized it was the actual floor burning."

Figure 26 - Looking into the wait station window and downward to the main deck, to the right in this image the vertical storage racks along the after bulkhead of the wait station. (Source: Vessel Crew)

[57] CG 026 - Interview Transcripts Combined NTSB Produced_Redacted, Server Assistant 2

5.2.2.4. The Senior Restaurant Manager[58] in speaking about her observations of the fire:

> "*It was like racks of glassware that they have stored in that wait station that are up against the wall, and so, it just looked like sparks were coming from in between the wall and those racks. I couldn't actually see. I could see them shooting out from behind and above the racks. And then the flames kind of just started. It looked like they were coming from underneath those water racks. Those racks are about an inch off the floor and maybe an inch away from the wall. And again I just -- I don't -- I couldn't see where it was actually starting from. I just saw the flames moving forward towards me from the wall.*"

5.2.2.5. Associate Restaurant Manager[59] who provided the most descriptive account of the actual fire testified:

> *"It didn't look like a typical fire, and it didn't look like anything was caught on fire. From what I saw, it looked like there was a line of fire basically in the form of like a snake basically going across the floor. I didn't see anything actually that was lit on fire, but there was some minor flames coming from the corner."*

5.2.2.6. He was subsequently asked to provide a diagram showing the location of the fire and size and shape of the fire on the wait station deck.

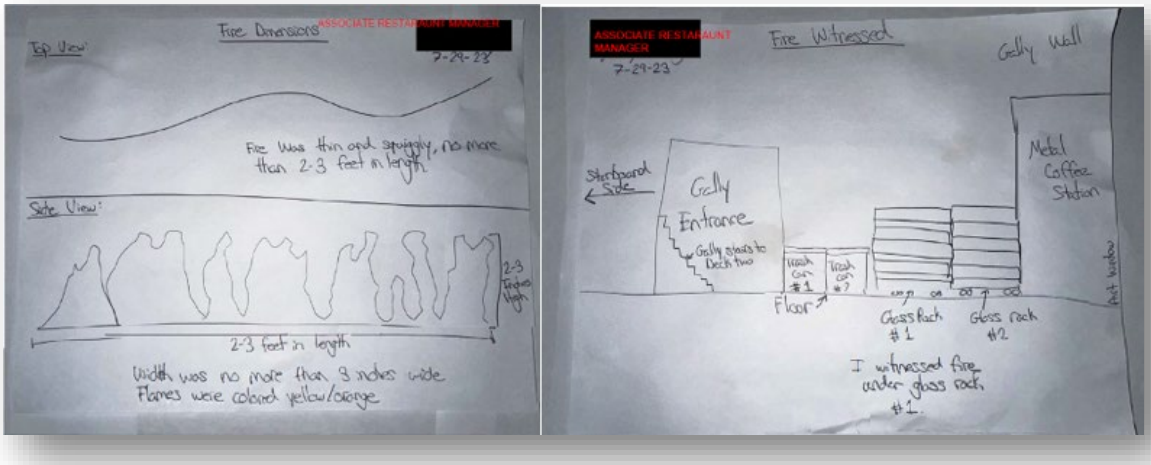


Figure 27 - Left, A diagram showing the shape of the fire and the length, width and height of the flames observed. **Right**, The location on aft bulkhead of the wait station forward of the galley on the main deck (port side) where the spark(s) and fire were observed. (Source: Associate Restaurant Manager)

[58] CG 026 - Interview Transcripts Combined NTSB Produced_Redacted, Senior Restaurant Manager
[59] CG 026_1 - Interview Transcripts Combined NTSB Produced_Redacted, Associate Restaurant Manager

5.3. The Initial Sounds of The Fire

5.3.1. In addition to characterizing a description of the shape and size of the fire, the Associate Restaurant Manager[60] described the sound associated with the fire,

> "*so I look up and the smoke's rising to the ceiling. When I saw that line of fire, I also heard like a very high-pressure noise, and I don't know what it was. It sounded like basically an air compressor like when you press it, and it shoots out pressurized air. It sounded like that."*

5.3.2. Server Assistant 1[61] reported these observations of the sounds associated with the fire:

> "*Q. did you hear any sound when people were aware of the fire, like a hissing sound or like gas escaping or any noise that was unusual?*
> *A. I remember hearing a pop, pop sound like someone was poppin popcorn.*
> *Q. And could you tell me, like if you walked me onto the boat that night, could you take me to where you heard the popping sound?*
> *A. Near the bus station[62] where the fire started*."

5.4. ATF Report of Investigation

5.4.1. The Bureau of Alcohol, Fire, Tobacco, and Explosives (ATF) was asked to participate in the investigation based on a Memorandum of Understanding with the U. S. Coast Guard. A Special Agent/Certified Fire and Explosives Investigator (SA/CFI) examined the vessel and participated in several witness interviews. An Origin and Cause Report was developed for the *Spirit of Boston*. The Boston Fire Department Fire Investigation Unit submitted a report on the fire on March 24, 2023, the fire and concluded that it was " unable to definitively put a cause to this fire. This fire is "undetermined"". Boston Fire Investigators attended the ATF testing session but did not offer other fire scenarios to test

5.4.2. Laboratory testing for the potential fire source materials were conducted and mockups were fabricated to replicate the physical layout of the wait station area on the main deck of the *Spirit of Boston*. The lab tests took place over several weeks in October 2023. Members of this investigation team witnessed fire testing at the ATF Fire Research Lab (FRL). The complete details of the Origin and Cause Report and Laboratory Report are contained in CG Exhibit 055.

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[60] CG 026 - Interview Transcripts Combined NTSB Produced_Redacted, Associate Restaurant Manager
[61] CG 026_1 - Interview Transcripts Combined NTSB Produced_Redacted, Server Assistant 1
[62] Bus Station and Wait Station are referring to the same location.

5.4.3. Key findings of the reports:

- Evidence supported the hypothesis the fire was caused by the accidental disposal of a Sterno® brand chafing fuel container.

- Witness statements supported the hypothesis the accidental disposal of a Sterno® brand chafing fuel container was the cause of the fire. Witnesses stated the "flame was solely coming from underneath…the trays of glasses," "trash cans and everything were out of the way," "there was nothing else", and "the flames were not even close to the trash can." Witness statements placed the fire on the deck under the inboard rolling glassware rack. No witnesses stated the fire was observed anywhere other than on the deck.

- Physical evidence supported the hypothesis the accidental disposal of a Sterno® brand chafing fuel container was the cause of the fire. The Sterno® brand chafing fuel container was where the inboard rolling glassware cart was stored. Fire patterns demonstrated the fire originated on the deck.

- Research and testing fires concluded the Sterno® brand chafing fuel containers tested remained lit 71% of the time when dropped from a height of forty inches (40"). Full scale testing produced the noise(s) as described by witnesses. Sterno® brand chafing fuel containers ignited an exemplar plastic rolling glassware cart approximately two minutes and 18 seconds (02:18) after exposure. Full scale testing produced the "snake" of fire as described by witnesses. A Sterno® brand chaffing fuel container, with all of its fuel poured out, will burn for approximately ten (10) minutes.

- The ATF Report states in the synopsis on page 1, *All investigators concur the fire was caused by the accidental disposal of a Sterno® brand chafing fuel container under the rolling plastic glassware rack in the port aft wait staff station. Due to these findings the fire has been classified as ACCIDENTAL.*[63]

5.5. Fire Fuel

5.5.1. ***Flammable Liquids***

5.5.1.1. The hospitality staff used four potential fire sources in their daily operations on the vessel. The canister type heating fuel and the paraffin table candles came in liquid form. There were also birthday candles of the typical wax composition used on the vessel for special events. The staff also used long handled liquid fueled lighters to light the various wicks. The company did not have any written procedures for the safe use, storage, and disposal of these potential fire fuel sources. The investigation found that there were several institutions that had detailed safe handling guidelines and procedures

[63] CG 055 - ATF Origin and Cause Report, pg. 1

for the use of Sterno® fuel, which is one brand of canister type heating fuel. A heating canister flame can be colorless, and the flame can be difficult to extinguish. One crew member said the flame on the heating canister was hard to blow out. Typically, the burning heating canister flame used for the buffet were extinguished by the galley staff by covering the wick with some type of cap, or by placing the cans in water after their usage. However, the heating canister in the coffee station was not discarded by the galley staff. Server Assistant 2 stated in one of her interviews, that she would sometimes extinguish the heating canister flame in the coffee station by blowing out the flame.

5.5.1.2. Prior to the discovery of the fire, Server Assistant 1 was seen on the vessel's closed circuit TV camera video spending some time in the entrance to the wait station and wiping up a liquid on the deck of the wait station. She described that the liquid looked like water, as a spill the size of a small dish and that it was not slippery. In the video she can be seen wiping the floor, then walking aft holding the corner of a rag by the corner to the location where she stated she disposed of it.

5.5.1.3. There was a coffee station in the forward side of the main deck wait station and the coffee container was warmed by a flammable heating canister. Two of the server assistants reported that they threw that heating canister in a trash can at the end of the evening during the cleanup from the dinner cruise. Both server assistants said they waited more than twenty minutes before throwing out the can.

5.5.1.4. The company failed to provide flammable storage lockers for the chaffing dish and coffee station heating canisters and paraffin candles. Those liquids were stored in storage racks, or in the case of heating canisters, some of the cans were stored on the deep windowsill that ran down the side of the wait station on the main deck.

5.5.2. *Electrical Safety*

5.5.2.1. The area of the initial fire was located in the vicinity of the aft section of the deck on the port side near a partial bulkhead in the wait station. The bulkhead had several electrical circuits that ran along the bulkhead, between aluminum panels, in at least one case going to an electrical outlet. This partial bulkhead separated the cold prep area from the wait station and the partition was not a complete bulkhead from floor to ceiling. The fire damage in the vicinity of that area and the overhead of the space was extensive. Investigators examined the damage and debris and attempted a reconstruction of the area where the fire was reported. In Figure 28, yellow marking tape was used by investigators to recreate the circuits for the electrical system.

Figure 28 - **Left**, Images of the wait station area showing the structure and electrical circuits in the area identified as where the fire started. The yellow tape in the top left, are the result of forensic examination of the wiring conducted by investigators. **Right**, Image of the damage to the cold prep area just behind the wait station area. In both these images, material has been removed from the scene to facilitate examination of the scene. (Source: USCG)

5.5.2.2. In 2020, the company sent out a fleetwide email to examine vessels for electrical safety issues. After the fire on the *Spirit of Boston*, investigators identified this 24V DC junction box and discovered non-standard wire terminations and splices.

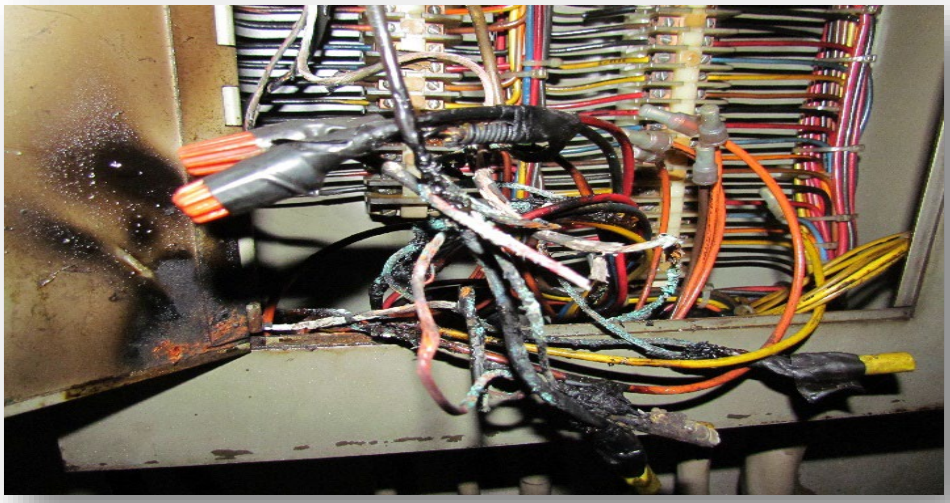

Figure 29- Image showing the condition of the 24 V DC engine room alarm panel junction box on the engine room bulkhead of the Spirit of Boston. Some of the corrosion and arcing on this junction box may have been the result of firewater seeping down from the main deck above. (Source: USCG)

5.5.2.3 The investigation conducted an interview with the National Director of Marine Engineering for Hornblower Group,[64] to identify the non-standard wire terminations and splices, refer to Figure 29 (above). Good marine practice and electrical requirements were discussed in the interview. The interview identified that a fuse was required on the wire circuit leaving the battery that was connected to the wheelhouse. A problem that should have been identified after the fleetwide email (*disseminated in February of 2020, refer to Section 5.5.6*) was sent to examine the vessels for electrical safety issues. There was no required fuse when that circuit left the battery, as evident in his interview:

Q Uh, just for clarity, you said that you were speaking about a couple of 1000.
A Mm-hmm.
Q Amps and an unfused circuit could you for clarity. Which circuit are you Speaking of?
A. This circuit that we're discussing with the SJ cable that was feeding the windshield wipers, that one right there that the pointers on. And it was fused in the wheelhouse, is that correct? It was, but that's at the other end of the cable.
Q. Correct.
A. So if you short it out, those fuses aren't gonna blow. It's gonna diffuses have to be at the battery, not at the wheelhouse. So the fuses are there to protect the wire and to protect the wire you have to protect that at the source which is at the battery.
Q. And is it good marine practice to have a fused wire leaving the battery heading up towards the wheelhouse?
A. Oh yeah, absolutely. And it's a rule.
Q. And is there a fuse when that circuit left the battery?
A. There was not. That's why we have this problem. Yes.
Q. OK, so the regulations required a fuse or good, OK. And there wasn't a fuse.
A. Yeah.

5.5.2.4 Based on the extensive damage to the electrical circuits near the wait station, it was difficult to determine if the vessel's electric circuits initiated the spark or heat that caused ignition leading to the fire. Two witnesses who looked into the after wait station described observations that could be associated with an issue in an electrical circuit, such as a spark or sparks. Server Assistant 2[65] described what she observed, and the cumulative comments are stated here:

I look up around the light, and I can see smoke. I can hear something down below. I look around and I see a spark. It's coming from underneath

[64] CG 026_1- Interview Transcripts Combined NTSB Produced Redacted, National Director of Marine Engineering, NTSB DOCKET Produced, Pg. 1251
[65] CG 026_1 - Interview Transcripts Combined NTSB Produced Redacted, Server Assistant, NTSB DOCKET Produced

where we house the glasses which is in a plastic glass bin where they all have their own individual little slots or what have you.

The sparks was just moving underneath there, underneath where those bins were.

Q. All right. So you see a spark. Could you try to fill in? Let's say I'm making a movie and I want recreate it. Like how would you describe as best you can the spark?
A. Just kind of a spark moving around. Like it's -- it seemed like it could have been connected something, but it's not staying still. It's moving around underneath.
Q. Would they be like a fireplace where you have sparks coming ff the wood or would it be like electric spark? You know what I mean? Have you ever bought a 4th of Jul sparkler and held that up?
A. Like that.
Q. So it was like spitting?
A. Yeah.
Q. I don't want to put words in your mouth.
A. Right -- no. More like an electric spark, not like what you said earlier. The spark was kind of jumping around under there.

5.5.2.5 The Senior Restaurant Manager described the scene in her interview[66] and her cumulative comments are listed below:

So I got up and walked over there, and then we saw sparks -- I saw sparks coming from what looked like the wall.

5.5.2.6. In a second interview, while looking at a photo of the accident reconstruction by investigators, which approximated the location of items along the after bulkhead of the wait station, the Senior Restaurant Manager recalled:

Q. Is that how high the sparks were?
Q. So would it be approximately 2 feet 18 inches?
A. Sure.
Q. But did you see any sparks or flame coming out from underneath the cart?
A. And saw flames. They saw the sparks first.
Q. So the flames, were they under the cart?
A. Yes.
Q. And then they were growing and spreading. Is that correct?
A. Yes.

[66] CG 026_1 - Interview Transcripts Combined NTSB Produced_Redacted, Senior Restaurant Manager, NTSB DOCKET Produced

Q. And then the largest extent of the fire that you saw, how large was the actual fire? If you could describe it in as it was a a foot and a half, two feet. Was it a circular pool of fire? How would you describe it?
A. It was mostly spreading on the floor, coming from the wall out from under the racks.

5.6. Fire Ignition (Heat and Combustion)

5.6.1. Due to the amount of damage around the fire and the lack of closed-circuit video evidence, the precise ignition source could not be identified. Visual examination and x-ray images of the area of fire origin by the ATF post fire, found a heating canister in the melted debris (glass racks). The heating canister was located at the base of the melted debris, indicating that the canister was on the deck prior to the ignition of the rolling glass racks. Therefore, the most probable ignition of the fire was an unextinguished heating canister from the coffee urn, that was inadvertently dropped on the deck and rolled under one of the rolling glass racks in the after area of the wait station. This fire ignition hypothesis was tested at the ATF Laboratory in Beltsville, MD. The results of the ATF Cause and Origin Report and laboratory test results are still pending at the time of submission of this report. Anecdotal evidence from members of the team that witnessed the ATF laboratory tests support this ignition hypothesis.

5.7. Fire Prevention and Fire Safety

5.7.1. Hornblower (City Cruises and Boston Harbor Cruises) experienced three fires aboard their vessels within a month's span, on June 7, 2022, aboard the *Spirit of Norfolk*, leading to the total constructive loss of the vessel, a small galley fire aboard the *Spirit of Baltimore* on June 10, 2022, and a smaller fire in a generator aboard the *Rendezvous* on June 29, 2022. The investigation examined these fires and other similar events at City Cruises to determine how the company reacted to these fires and what preventative fire safety measures the company put into place to prevent future fires.

5.7.2. A marine operating company is responsible for the safe operation of a vessel, ensuring the safety of personnel, the vessel, and the environment. The practices and procedures that a company puts in place, needs to conform to existing government regulations. The Coast Guard provides oversight in its statutory role of ensuring compliance. For example, the Coast Guard conducts inspections and conducts and reviews drills to determine the effectiveness of those drills. The regulations are minimum standards and company owners must meet those standards. There is nothing that prevents a company from exceeding existing regulations.

5.7.3. ***Company Oversight***

5.7.3.1. A SMS was ***not*** required for the company or vessel operation based on existing regulations. However, a company representative stated they employed "… *85% of what a safety management system would require*

across the company right now, across City Cruises."[67] At the time of this report, the Coast Guard is currently in the process of assessing regulations for SMS for small passenger vessels. The NTSB has indicated that marine operating companies instituting an SMS is a high priority agency recommendation in accordance with the NTSB "most wanted" listing. The investigation attempted to evaluate the company oversight through the holistic lens of having an SMS based upon the company's assertion that the procedures in place equaled 85% of the contents of an SMS. The investigation attempts to compare what was provided to the investigation to the typical SMS guidance.

5.7.3.2. Key elements of a functional SMS include audits, process and procedures documented, risk assessment, lines of communication, and roles and responsibilities for key safety personnel. In the case of the *Spirit of Boston,* external or internal audits were not performed to determine if procedures and practices were effective. A good example of this disparity was the Emergency Response Plan for the company, onboard the *Spirit of Boston*, the effective date of this publication was 2016 and on the *Spirit of Norfolk*, the effective date was 2021. Audits of the procedures conducted by the company should have caught the issue with the Emergency Response Plan. The investigation was unable to identify any lessons learned from the fire on the *Spirit of Norfolk* that the company then used to update the Emergency Response Plan or fire safety, fire prevention, or firefighting practices.

5.7.3.3. A company audit of fire safety practices should have identified the use of open flames on the vessels and the lack of safety procedures related to those potential fire sources. The use of these open flames is not prohibited by existing Coast Guard regulations, but in hindsight, it would have been a best practice to reduce or eliminate open flames on a vessel, which the company is attempting to do following the incident on March 24, 2023.

5.7.3.4. The company exhibited minimal ability to audit processes and minimal ability to obtain, share, and implement lessons-learned from previous incidents to improve the safety of vessel operations. An examination of incidents available to the investigation showed the company did not identify and act on incidents that they should have been classified as Serious Marine Incidents, using their unique definition of those events, including fire, that can disrupt normal operations. Company personnel (when interviewed) could not recall or identify the incident that occurred on the *Odyssey,* on May 29, 2021, where a cruise was cancelled due to a collision and fire aboard another vessel, leading to a disruption of normal operations. According to their policy, this incident should have been classed as a Serious Marine Incident.

[67] Spirit of Norfolk Formal Hearing Testimony, Senior VP Hornblower Marine

5.7.3.5. On July 20, 2022, the company sent out the SafeCruise agenda[68] fleetwide via email. In section 3 there was this notation:

> *Incident Review:*
>
> *The Spirit of Norfolk fire incident has shown us the value and need to increase our focus on training. The investigation is still ongoing so we don't have all the answers, but this continued focus on safety will allow us to build on our abilities and continuously improve.*

5.7.3.6. In reviewing company training for the Boston dining fleet, there was a disparity in New Hire Orientation and vessel specific safety orientation in the hospitality staff. One of the direct eyewitnesses to the fire said they did not receive New Hire Orientation. Two of the eyewitnesses did not receive vessel specific safety training. This would have introduced these potential first responders to the location and use of a fire extinguisher, fire blanket, and the PASS method (Pull, Aim, Squeeze, Sweep) of using a fire extinguisher. This disparity among the employees was evident during the investigation, even though the company said that all employees should have this training. The vessel specific orientation would train all onboard personnel on the location of safety equipment as well as a discussion on how to use that equipment. Server Assistant 1, who worked almost exclusively on another Boston dining vessel, the *Odyssey,* was asked about vessel specific safety training, in her words,[69] "safety checks",

> *"Q. Has anyone ever shown you -- there's a red bag. It's a big red bag color of your blouse, and it says fire blanket.*
> *A. I've seen it.*
> *Q. Has anybody told you what that's for?*
> *A. To put on someone if they're on fire.*
> *Q. Right. I know what that, that's -- but has someone in the vessel --*
> *A. Yeah, we have -- we do safety checks all the time.*
> *Q. Tell me what a safety check is?*
> *A. Someone from the marine crew will come around and help -- shows us how to put on our lifejackets, where the fire extinguishers are, make sure -- where everything is(indiscernible) a fire.*
> *Q. And do they tell you that if there's a fire, and there's a fire extinguisher close use it?*
> *A. Yes.*
> *Q. And do you remember who told you that?*
> *A. Captain XXXXX.*[70]
> *Q. Captain XXXXX. And I know that this, you know, this accident, you know, it's pretty traumatic but do you know --*
> *A. Oh, it was.*

[68] CG 039 - SafeCruise Agendas Jul 22_Mar23
[69] CG 026_1 - Interview Transcripts Combined NTSB Produced Redacted, Server Assistant 1, Pg. 996
[70] Redacted

Q. -- do you know how long ago Captain XXXXX told you this is -- this is XXXXX?
A. Yes.
Q. When was the last, when did the -- when did he tell you to use a fire extinguisher?
A. Our last safety meeting we -- before the season started.
Q. And when was that? You don't have to give me a date. Was it couple months ago?
A. Couple of months ago.
Q. And do they do that, like, before every real season gets started do they have that kind of talk with you?
A. They do. Just make sure that another fire doesn't happen again.

5.7.3.7. No personnel that worked on the *Spirit of Boston* could recount receiving vessel specific safety training for that vessel, as described by Server Assistant 1 that worked almost exclusively on the *Odyssey.* She had worked several trips on the *Spirit of Boston*, leading up to the fire. The Director of Food and Beverage for the Boston Dining vessels explained[71] how the vessel specific training should happen,

Q. Okay. Just want to touch a little bit more about the training. So does any of that "train the trainer" training include any type of safety and/or emergency response if there were to be a fire on board or how to fight a fire, anything like that?
A. That training does not, but we do, do an orientation training where the captain goes through and does a full safety -- well, captain, first mate, whoever might be on, does a safety training where we walk through the boat, they show us where all the fire safety equipment is, the fire stations, how to use a -- how to use a fire extinguisher, both the CO2 and the dry-chem. They'll show us how to utilize life vests, what responsibilities are for different positions in the event of a fire or an emergency, and that usually happens at the beginning of the season where we'll do a full one with everybody and then during the summer, as we bring new people in and they're doing their orientation, they're welcome aboard, we'll have those individually or small groups with people that are coming in. Then through the summer we have, at least for our pre-cruise meetings, you know, there's a specific, you know, safety line that managers will go over, depending on whatever it is, you know, slips, trips and falls, how to properly use a knife, that sort of stuff. So we try and keep safety in our daily meetings and then we'll bring in fire safety, you know, throughout the summer but it's not a consistent, you know, "all right, every Monday we're doing a fire safety one.

[71] CG 026_1 - Interview Transcripts Combined NTSB Produced_Redacted,Dir. Of Food and Beverage. 1, Pg. 442

Q. And has this pre-season meeting happened yet this year in 2022 (sic)?
A. Not yet, I believe they're just -- they're finishing up the PowerPoint and everything for it, we're going to be doing it on the 26th, I believe.

5.7.3.8. To correct a mistake in the final question and answer of the previous interview transcription from Section 5.7.3.7, the date in question in the last answer was at some point after the fire on the *Spirit of Boston* took place on the evening of March 24, 2023.

5.7.3.9. Managers at the Boston operational level could not clearly articulate who in the National Marine Team was directly responsible for specific duties, such as safety, training, and maintenance support. The managers and directors referred to the ambiguous term, "dotted line relationship" to support their assessment of a successful team composition. The investigation was not able to determine from the available evidence, who in the company the Boston managers could turn to if they needed specific assistance in a safety related matter, except by referring to the "dotted line relationship." No single person was identified as the person responsible for the safety of operations, even though the organization chart[72] contains a Director of Regulations/Safety/Security.

5.7.3.10. The Emergency Response Plan was the overarching document that outlined the response to any emergency, from fire, to grounding, to sniper attack. This investigation was provided an older version of the Emergency Response Plan from the company, dated August 15, 2016. This plan was updated in 2021 but did not contain a single contingency for an event such as the one that took place onboard the *Spirit of Boston* on March 24, 2023. There is no checklist, procedure, or policy that outlines, who is in charge when no marine crew are aboard, or what to do in an emergency. The Senior Restaurant Manager was not aware of the document and had not seen that plan in the 6.5 years she was employed in her position. There is no evidence that this plan, dated 2021, was updated following the fire on the *Spirit of Norfolk*, where the actions of the Captain in not sounding the general alarm or making public address announcements for the benefit of the passengers is one facet of that investigation.

5.7.3.11. The company established the position of Port Safety Officer as early as June 2020. After the establishment of this collateral duty for one of the persons at a port, this program got off to a slow start fleet wide. In August 2022, most of the ports had Port Safety Officers in place. In the Boston Dining fleet, neither the General Manager nor the Director of Marine Operations could identify the Port Safety Officer.

[72] CG 049 - City Cruises Org Charts Redacted

5.8. Safety Sensitive Positions

5.8.1. In the case of the *Spirit of Norfolk* and the *Spirit of Boston*, neither Restaurant Managers were designated by the company as a safety sensitive position. During the fire event on the *Spirit of Boston*, the senior company person aboard would be put into a position, by the discovery of a fire in the wait station, to make a crucial decision. That decision would be directly related to the safety of persons, the vessel, and the environment. That decision would be on par with the type of decision that the captain of the vessel would make, had he been aboard the *Spirit of Boston* during the fire event that evening or when the vessel was underway. There can be no dispute that the safety decision confronting the senior company person aboard that night, was to direct personnel to fight the small fire on deck with a fire extinguisher or fire blanket, or to have personnel abandon the vessel to the safety of the dock. Company policy in Boston was to have all personnel attend training that included fire safety. This included vessel specific safety training, where personnel from the marine crew would conduct safety training for all personnel, to include the location of basic fire safety equipment and how to use it. However, most of the restaurant staff did not receive vessel specific training onboard the *Spirit of Boston*. As previously stated, the Senior Restaurant Manager was not familiar with the existence of the Emergency Response Plan as a 6.5 year employee on the Boston vessels.

5.8.2. In the *Spirit of Norfolk* Public Hearing, the company Senior Vice President[73] was asked about the company's stance on safety sensitive positions:

> *Q. So with the structure of City Cruises, how would you define, and you can use layman's terms, a safety-sensitive position?*
> *A. A safety-sensitive position within City Cruises are those that are assigned to the station bill, particularly would be the crew, the deck crew, or captain or first mate. And if they chose to use somebody that was adequately trained from the food and beverage staff, they could, but they had to be -- they had to meet training requirements.*

5.8.3. In *Spirit of Boston* investigation interviews[74] with the company Co-Chief Operations Officer, this exchange took place:

> *Q. So the restaurant manager made a decision to evacuate the vessel or could have made a decision to attempt to extinguish the fire she had received training on the use of fire extinguisher and the new hire orientation. Would you call that a safety decision?*
> *A. I don't know how to characterize a decision. What I can tell you is she took the action that she felt comfortable taking. She prioritized life safety 1st and evacuation of live crew off of our vessel and she took the appropriate action to call in professional firefighters to handle this situation. And I we are very pleased with her decision making process in that regard.*

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[73] Spirit of Norfolk Public Hearing Transcripts, Senior VP Marine Ops
[74] CG 026_1 - Interview Transcripts Combined NTSB Produced Redacted, Co-Chief Operations Officer 1, Pg. 180

5.8.4. The United States Coast Guard Deputy Commandant for Operations (DCO) website defines safety sensitive as:

> *"Safety Sensitive Position: Is any position (billet) aboard a vessel, that requires the person filling that position to perform one or more safety sensitive duties or operation of a vessel on either a routine or emergency only basis."*

5.8.5. The fire emergency placard in the *Spirit of Boston* wheelhouse listed the following duties for the Restaurant Manager in case of a fire on the vessel:

> *"Restaurant Mgr: Supervise restaurant staff as directed by the captain. Stay in constant communications with the captain. Be prepared to muster passengers for evacuation."*

5.8.6. Based on an examination of the facts, the Senior Restaurant Manager was in fact in a safety sensitive position as defined, on the evening of March 24, 2023, when she was the senior company person onboard when company personnel and contractors were aboard and made decisions that directly related to the safety of personnel, the vessel and the environment.

5.9. Risk To Personnel Aboard with No Marine Crew in Attendance

5.9.1. The potential risks to the personnel onboard late on the evening of March 24, 2023, posed by the fire aboard the *Spirit of Boston* was very real. There was a disparity in the level of the basic fire safety training (New Hire Orientation) and vessel specific safety training that the hospitality staff received, when contrasting the *Spirit of Boston* and the *Odyssey* personnel. Personnel who were aboard after the marine crew and galley crew were inconsistent in their level of knowledge of the use and location of the readily available portable fire extinguishers and the fire blanket. Both devices were close at hand to the fire scene and a path to the exit was available. Had there been marine crew onboard when the fire first started, it is reasonable to believe the fire would have been extinguished with minimum effort and resulting in little to no damage.

5.9.2. The Emergency Response Plan made no provision and had no checklists for any emergency event where marine crew were not present to act. The vast majority of the typical emergency contingencies require actions from the marine crew to mitigate dangers or exacerbation of a hazard or danger, such as fire, medical emergency, flooding, grounding, etc. In interviews of the personnel on the vessel who worked on the hospitality side, they indicated that they would tell the marine crew of the emergency and those personnel would respond. The senior employee aboard representing the company's interests was not familiar with the existence of the Emergency Response Plan.

5.9.3. The Emergency Response Plan had not been updated with any of the lessons learned from the *Spirit of Norfolk* fire and evacuation.

5.9.4. The Senior Restaurant Manager notified company management as her first act, via the cell phone. The Associate Restaurant Manager called 911 to report the fire, even though he reported that he was not taught or trained to do so.

5.9.5. There were two contractors aboard at the time of the fire, disc jockeys. After both evacuated the vessel, one of the disc jockeys and a member of the hospitality staff boarded the vessel after it was evacuated and without authorization. The hospitality personnel mustered on the dock were in no position to attempt to locate and rescue those personnel if they became overcome by smoke, were injured or incapacitated aboard the vessel. Both persons returned to the dock safely.

5.9.6. Any of the personnel who were aboard at the identification of the fire could have been injured or incapacitated by the fire and subsequent evacuation of the vessel.

5.9.7. Server Assistant 2, who initially saw the smoke at the ceiling as she walked aft towards the wait station, had difficulty with the stairs on the vessel, the Senior Restaurant Manager stated in her interview:[75]

> *One of my servers, XXXXX[76], had came downstairs and I had allowed here (sic) to just stay down there and finish the work that had to be done down there because she has a hard time going up and down the stairs.*

5.10. Fire Mitigation

5.10.1. ***Fire Detection and Fixed Suppression System****:* The *Spirit of Boston* was as an existing steel-hulled vessel at the implementation of new Title 46 CFR Subchapter T (which also created Title 46 CFR Subchapter K), thus it was not required to install fire detection or fixed firefighting suppression in the engine room. The *Spirit of Boston* **was fitted with a fire detection system,** although not required by regulation. There were heat detectors in the galley and in the engine room, with visual and audible alarms located in the vessel's wheelhouse. The system was fully operational at the time of the fire. The fire detection system was installed by the former owner and operator, Boston Harbor Cruises. Vessel personnel who were securing the vessel for the evening detected the fire before the automatic system detected the fire and that is reasonable considering their proximity to the location of the start of the fire.

5.10.2. ***Hospitality Staff Fire Response*****:** The staff members that remained onboard cleaning up the vessel and readying it for the next operation only located the fire in the incipient stages where it was a small easily controlled fire. The staff failed to take any action to prevent the spread of this fire. The company indicated that it provided New Hire Orientation and vessel specific orientation to all employees working aboard vessels on the use of fire extinguishers (i.e. utilization of the PASS method) to extinguish a fire (Figure 16). A fire extinguisher was located less than 10 feet from the fire and there was a fire blanket in a labeled red bag on the bulkhead right outside the wait station

[75] CG 026_1 - Interview Transcripts Combined NTSB Produced_Redacted, Dir. Of Food and Beverage. 1, Pg. 1120
[76] Redacted

near the galley. The company training indicates that the employees should use a fire extinguisher *"if possible*" and "*use an extinguisher ONLY if you have been trained to use it."* No attempt was made by company personnel to extinguish the fire in its early stages. The only fire response to this small fire was an employee calling Boston 911 to alert the fire department of the emergency and the immediate evacuation of the vessel. The marine crew, who have a more extensive level of training in basic firefighting, were not onboard at the time of the fire. In contrast to training on the use of a fire extinguisher, utilization of a fire blanket was not part of the New Hire Orientation fire safety training. The main two uses of a fire blanket are 1) to protect or shield a person from a fire and/or 2) spreading the blanket out to smother a fire or a person on fire. No direct eyewitnesses were trained regarding its location and use. The fire blanket was located on the bulkhead near the entrance to the galley.

5.10.3. The U. S. Coast Guard, during this investigation, examined other fire events in the City Cruises fleet. On September 13, 2023, at approximately 7:11 p.m., the Coast Guard initiated a preliminary investigation following a notification of a fire onboard the small passenger vessel *Cherry Blossum* (O.N. 670357) while moored at the Alexandria City Dock in Alexandria, VA. The Master notified Coast Guard Sector Maryland-NCR that a food tray had caught fire in the galley. The food tray had been removed from a hot box and placed on the counter. An unlit Sterno® fell onto the tray and spilled its contents on the tray. A member of the catering staff picked up the tray and the spilled contents on tray ignited from a nearby lit Sterno®. The caterer was able to drop the tray without being burned and another caterer extinguished the fire with a portable fire extinguisher. While this investigation did not interview witnesses to this fire event, the successful outcome most likely was the result of a hospitality worker's (caterer) prompt action in using an available fire extinguisher to extinguish the fire.

5.10.4. In the small electrical galley fire that occurred on the *Spirit of Baltimore* on June 10, 2022, the fire was almost immediately extinguished and resulted in no significant damage and resumption of normal operations. The fire was documented in the U. S. Coast Guard MISLE database due to the major fire on the *Spirit of Norfolk* three days previous. The fire was detected and one of the marine crew pointed a portable fire extinguisher at the small fire and extinguished it. There was no need to use the second dry chemical fire extinguisher that the captain had as backup. The immediate and effective reaction by the crewmembers prevented a very small fire from becoming the source of a larger fire. The fact that the crew acted instead of evacuating the vessel is of significance in the minor nature of this event.

5.10.5. In the case of the fire on the *Spirit of Boston*, the prompt use of available fire extinguishment tools, either the nearby portable fire extinguisher or the fire blanket, would have greatly reduced the likelihood of the fire growing in intensity and creating the risk to personnel and significant damage to the vessel.

5.11. Fire Agency Response

5.11.1. Boston Fire Department firefighters and equipment arrived approximately four to seven minutes after discovery of the fire. Arriving pier-side, the fire teams deployed hoses and personnel to isolate and fight the fire mainly in the main deck area. The fire was

originally classed as a one-alarm and was elevated to a second alarm. A waterside marine unit also responded in support of firefighting operations. The fire department received the initial alarm at 11:05 p.m. and were reported to be at the scene at 11:09 p.m. At 11:11 p.m., the fire was classified as a "one-alarm" fire and then elevated to a "two-alarm" fire ("second alarm") at 11:19 p.m. Fire was contained to the main deck and based on the fire department reports did not involve other decks. At 1:00 a.m. on March 25, 2023, the fire was declared "out." Fire department would remain on the scene to conduct a fire investigation[77] and would classify the fire as unintentional.

5.11.2. The run logs for the Boston Fire Department would contain a relative narrative of some of the events related to the fire:

> *Two big lines were stretched and operated on the fire. First from the dockside in a defensive position to knock down the main body of fire, and then the second line advanced on the seat of the fire from the interior. Fire extension was kept to the main first level of the vessel with no extension to the above decks. Truck companies broke out multiple windows on all levels due to the heave (sic) smoke condition throughout and ventilation purposes to search.*

6. Conclusions

6.1. Causal Determinations

6.1.1. Based upon the weighted evidence, the precise ignition source for the fire could not be specifically determined. Upon the totality of evidence, The ATF Origin and Cause Report and Laboratory Report identified that it was most likely a coffee warming heating fuel canister. It may have been inadvertently thrown, or dropped onto the floor and then left unattended under the combustible rolling carts located along the aft bulkhead of the wait station.

6.1.2. The company failed to have instructions or policies regarding the safe handling and storage of open flames, flammable liquid heating fuels, paraffin candles, fuel in canisters to heat chaffing dishes, long-wand handheld lighters, or birthday candles.

6.1.3. Once the fire ignited, the fire spread to adjacent areas, travelling upwards to the overhead, and travelling forward and producing smoke throughout the vessel.

6.1.4. The *Spirit of Boston* hospitality personnel who were onboard the vessel cleaning up after the cruise saw the fire in its earliest stages. They initially identified light smoke along the overhead in the vicinity of the wait station as well as localized sparks coming out from under one of the wheeled and moveable rolling glass carts which contained glasses in plastic racks. One witness noted a ribbon of fire on the deck (under a glass cart) that was less than two to three feet in length, flames two to three inches high, and less than three inches wide.

[77] CG 013 - Boston Fire Dept Report and Run Report Redacted

6.1.5. The three witnesses to the initial signs of fire were near a fire extinguisher and a fire 7 blanket and had unrestricted access to this fire safety equipment within feet of the scene. One witness mentioned using a fire extinguisher to the Senior Restaurant Manager, but not one person attempted to grab one, or attempted to extinguish the fire.

6.1.6. At the time there were Company personnel aboard the vessel, but there were no trained marine crew to contain and fight a fire. By the very nature of the type of decision the Senior Restaurant Manager would make, related to the safety of personnel, to fight the fire or evacuate the vessel, she was in fact in a routine safety sensitive position as the senior company person aboard the vessel when no marine crew was present.

6.1.7. The senior company representative aboard directed all personnel to evacuate the vessel and no attempts were made to suppress or extinguish the fire.

6.1.8. For the 16 persons aboard at the time of the identification of a fire, a blocked escape route, slip, trip or fall, or any contingency that may have prevented escaping the vessel may have resulted in a dangerous outcome for personnel.

6.1.9. The company failed to ensure the safety of personnel onboard the *Spirit of Boston* when there were no marine crew aboard the vessel. This was a routine situation where the hospitality staff and contractors would be aboard the vessel after the vessel docked and the marine crew had departed. From a corporate level, conducting audits of procedures, policies and practices and examining this situation, to determine the risk to personnel, it would be expected that the risk posed by the lack of training for hospitality staff and the danger associated with the use of flammable liquids would have been identified and addressed.

6.1.10. The company failed to ensure that all personnel who worked on the vessel received an effective and thorough briefing on the use of a fire extinguisher, utilizing the PASS method, nor did all hired personnel receive an effective demonstration on the use of a fire extinguisher, as outlined in the New Hire Orientation program.

6.1.11. The company failed to ensure that all vessel personnel, including hospitality staff, received a vessel specific safety briefing pointing out the location and use of critical safety equipment, in this case, readily available fire safety equipment designed for just this emergency, a small fire on the deck of the wait station.

6.1.12. Comparing and contrasting the safety training that employees received on the *Odyssey* and the *Spirit of Boston* would find that the hospitality staff of the *Odyssey* received regular briefings on fire safety, including the use of fire blankets, fire extinguishers and other safety equipment. These briefings would involve all vessel personnel. Witnesses who worked on the *Odyssey,* another company Boston dinner vessel, could articulate the use of the fire safety equipment and the expectations for the use of that equipment. The company failed to ensure proper training on the *Spirit of Boston* for all vessel personnel. This lack of training situation is a noticeable distinction from vessel personnel training onboard the company's aforementioned other Boston dining vessels.

6.1.13. The company failed to include all possible contingencies for vessel emergencies in the City Cruises Emergency Response Plan, most notably there was no contingency for company personnel to follow when there was an emergency situation aboard its vessels where employees and contractors were aboard and there was no marine crew aboard. As written, the Emergency Response Plan relied on the actions of marine crew to mitigate any emergency situation.

6.1.14. The Senior Restaurant Manager aboard failed to know about the Emergency Response Plan or the expectations for the duties of the Restaurant Manager outlined in the plan. Moreover, the company failed to ensure that the Senior Restaurant Manager had the training or knowledge about the Emergency Response Plan or the expectations for the duties of the Restaurant Manager outlined in the plan.

6.1.15. The three direct eyewitnesses to the fire (Senior Restaurant Manager, Associate Restaurant Manager, and Server Assistant 2) failed to make use of a portable fire extinguisher in close proximity to the location of the origin of the fire. The New Hire Orientation Training familiarizes those personnel with initial training and repeated subsequent training to sound the alarm, dial 911 to alert the authorities and summon firefighters, determine a path to escape and finally utilize the fire extinguisher(s) to knock down or extinguish the fire in the earliest stage. The vessel's portable fire extinguishers are designed for just such a contingency, without the user needing to be dangerously close to the fire and in protective firefighters clothing or equipment.

6.1.16. The senior company representative aboard during the fire event, the Senior Restaurant Manager, was in-fact fulfilling a safety sensitive role. The Senior Restaurant Manager made critical safety decisions in the absence of the marine crew and based on the circumstances it would be expected that in an emergency she would be the key decision maker relating to safety.

6.1.17. Post-casualty, the Senior Restaurant Manager tested positive for THC, marijuana. Based on the current testing guidelines, there is no way to determine if the effects of the use of marijuana caused impairment and possibly influenced her actions on the accident date. The company did not order a follow up drug test to confirm the results. In Massachusetts, the recreational and medical use of marijuana is permitted, while Federal law prohibits the use of these impairing substances onboard commercial vessels and elsewhere. Despite the initial positive drug test results, the company failed to conduct an investigation of the employee as stipulated in the company Drug and Alcohol Policy. There is no evidence that any remedial action, in lieu of termination, was put in place to maintain a drug and alcohol-free workplace, one of the stated goals of the policy.

6.1.18. The *Spirit of Boston* was in compliance with U.S. Coast Guard regulatory, policy, and inspection requirements on the day of the incident.

6.2. Evidence of Act(s) or Violation(s) of Law by Any Coast Guard Credentialed Mariner Subject to Suspension or Revocation

6.2.1. There is no evidence that credentialed mariners engaged or employed on the *Spirit of Boston* on March 24, 2023, committed any acts of negligence or misconduct in accordance with 46 USC 7703 and 46 CFR Part 5.

6.3. Evidence of Act(s) or Violations(s) of Law by U.S. Coast Guard Personnel, or any other person

6.3.1. There was no evidence to indicate any USCG or other federal government individual committed acts which were identified as causal factors to the casualty.

6.4. Evidence of Act(s) Subject to Civil Penalty

6.4.1. There is no evidence to support civil penalty action for this incident.

6.5. Evidence of Criminal Act(s)

6.5.1. There is no evidence to support the referral of a potential criminal violation for this incident.

6.6. Although there was a positive drug test by a non-marine crew member, there was no evidence drugs or alcohol, or distracted vessel operations were causal factors for this incident.

6.7. Need for New or Amended U.S. Law/Regulation or Policy

6.7.1. The current regulatory fire protection standards for the *Spirit of Boston* are insufficient for the size and passenger carriage capacity of the vessel. *See safety recommendation 8.1.2*

6.7.2. The implementation of an effective SMS would have enhanced and closed the gaps in the safety culture for the company operating the *Spirit of Boston* and the associated internal and external audits of company procedure, policy and practices may have identified the gaps that allowed the fire to start.

6.8. Unsafe Actions or Conditions that Were Not Causal Factors

6.8.1. Noted in section 4.2, electrical safety and lack of compliance with applicable electrical regulations and procedures were noted during this investigation. It shows a lack of engineering management within Hornblower and their fleet.

7. Actions Taken Since the Incident

7.1. During the course of this investigation, the U. S. Coast Guard examined the events and circumstances that occurred aboard the *Odyssey* (drifting vessel on fire, causing evacuation of passengers and cancelling of cruise, May 29, 2021, Boston, MA), the *Salacia* engine room fire (while transiting with 174 passengers in the Massachusetts Bay, August 8, 2021, MISLE Activity 7281174), the fire and total constructive loss of the *Spirit Of Norfolk* (fire and total constructive loss, June 7, 2022, MISLE Activity 7476562, Norfolk, VA), the galley fire on the *Spirit of Baltimore*, June 10, 2022 (Non-reportable small electrical fire in the galley, MISLE Activity 750251, Baltimore, MD), the *Rendezvous* generator fire (fire and evacuation of

passengers, June 29, 2022, MISLE Activity 7491267, Philadelphia, PA), and the main switchboard fire on the *Hornblower Serenity* (electrical fire, non-reportable marine casualty, July 18, 2023, MISLE Preliminary Investigation Activity (PIA) 7746691, New York, NY) to determine the operating safety culture of the owner/operator, City Cruises/Hornblower.

7.2. A U.S. Coast Guard Marine Safety Alert[78] was issued identifying lessons-learned from the *Spirit of Norfolk* and the *Spirit of Boston* fire incidents focusing on fire prevention, including proper storage and handling of combustible materials, including (but not limited to) open flames, flammable liquid heating fuels, paraffin candles, fuel in canisters to heat chaffing dishes, long-wand handheld lighters, or birthday candles.

7.3 As a result of the fire, the company has done away with the use and storage of both liquid paraffin candles and birthday candles onboard their vessels. In addition, the company was minimizing the amount of canister type heating fuel stored aboard their vessels and investigating the acquisition and use of lockers for storage of flammable liquids, such as the flammable heating fuel canisters.

8. Recommendations

8.1. Safety Recommendations

8.1.1. Safety Recommendation 1: It is recommended that the Commandant implement SMS regulations for all Title 46 CFR Subchapter K vessels, including "existing vessels."

8.1.2. Safety Recommendation 2: It is recommended that the Commandant implement new regulations under 46 CFR Subchapter T (T-L vessel) and Subchapter K to eliminate open flames onboard vessels and if carried for any reason require those vessels that carry onboard flammable liquids to store those flammable liquids in type approved flammable liquid storage lockers. Examples of those flammable liquids are heating fuels for chaffing dishes, table candles with liquid fuel, paint thinner, acetone, charcoal lighter and other similar products.

8.1.3. Safety Recommendation 3: It is recommended that the Commandant clarify the definition "safety sensitive" in regulatory language to precisely define which type of crew functions are in fact safety sensitive. The Coast Guard's Deputy Commandant for Operations (DCO) website states that "*Safety Sensitive Position: Is any position (billet) aboard a vessel, that requires the person filling that position to perform one or more safety sensitive duties or operation of a vessel on either a routine or emergency only basis."* In the case of the *Spirit of Boston* fire the senior company person aboard would make life or death decisions, to fight the fire or evacuate the vessel. The company did not classify that position as being in a safety sensitive position based on the company interpretation of the definition of safety sensitive position.

8.1.4. Safety Recommendation 4: It is recommended that the Commandant require that all personnel employed onboard all certificated vessels are required to have completed an

[78] USCG Marine Safety Alert 07-23, Critical Insight From Ongoing Investigations Into Small Passenger Vessel Fires

appropriately scaled Coast Guard approved firefighting course. Unlike deep draft vessels over 100 GT, personnel onboard smaller vessels are not required to obtain a baseline merchant mariner credential which would include certain mandated courses, including firefighting. This poses a national threat to the safety of the general public and the Coast Guard must find ways to include this large amount of non-credentialed crews in the baseline safety requirements that the rest of the merchant marine are required to obtain. This has been witnessed several times over in past fires and accidents onboard other similar type vessels under 100 GT. This entire fire and subsequent significant damage to the vessel may have been prevented if nationally mandated firefighting training was obtained by the remaining employees onboard the vessel and not left up to the company to assume they have trained their staff. CG-REG has published a final rule "Towing Vessel Firefighting Training, 88 FR 67966" that allows towing vessel operators to take scaled back training that reflects the capabilities of the equipment onboard the vessel they are working on. The small passenger vessel fleet must duplicate this effort.

8.1.5. Safety Recommendation 5: It is recommended that the Commandant conduct a review of HORNBLOWER CRUISES AND EVENTS, LLC and their subsidiaries to determine the adequacy of their fire prevention training and organizational ability to maintain safe operations. This review should include, but not be limited to, an examination of all casualty reports involving fires onboard their passenger vessels and any damage surveys that were conducted due to a lack of maintenance, training or company oversight. This review should be used to identify organizational safety gaps within the company and between ports of operation.

8.1.6. Safety Recommendation 6: It is recommended that the Commandant require all certificated passenger vessel operators under Subchapter K, to ensure they designate one qualified and trained person, in vessel specific emergency response, to remain onboard the vessel while not underway until all the non-marine crew and contractors have departed the vessel. This person should be trained to an acceptable standard to respond to vessel emergencies to reduce the risks from emergencies such as fire, medical, flooding, and other contingencies outlined in a Vessel Emergency Response Plan and to ensure the safe evacuation of the vessel, if necessary.

8.1.7. Administrative Recommendation 1: It is recommended that the Commandant strongly urge the Passenger Vessel Association (PVA), a quality partner of the Coast Guard, leverage the lessons learned and safety recommendations from this investigation to support voluntarily implementation of enhanced safety protocols and training by their members beyond the minimum standards found in the Code of Federal Regulations. The Coast Guard relies on partnerships with trade organizations to improve the industry and communicate need for change with their input. The majority of our nation's passenger vessel fleet are members and the PVA has the requisite expertise to help lead the initiatives.

8.2 Although not a direct contributing factor to this accident, the investigation revealed the following issues warranted being classified as **Findings of Concern**:

8.2.1. The company had an incident reporting procedure (CG Exhibit 043) that mandated internal investigations for incidents identified based on the company's classification criteria. Management and operations personnel were questioned about two specific incidents: one where a burning vessel drifted onto a docked company vessel, the *Odyssey*, with passengers aboard, leading to an evacuation and cruise cancellation; and another where a generator fire occurred on the docked company vessel, the *Rendezvous*, also resulting in passenger evacuation and cruise cancellation. According to company policy, a serious marine incident is defined *"as an incident involving death, serious injury, vessel fire, grounding, flooding, collision, mechanical failure, structural failure, pollution, or any other event that could negatively impact or disrupt routine operations."* Both incidents clearly disrupted routine operations and should have been classified as serious marine incidents.

However, management witnesses could not confirm that these incidents were recorded or investigated as events affecting operational safety. There is no evidence that these incidents, or similar vessel fires, were discussed in SafeCruise or Marine Ops meetings, which are platforms intended to share such critical information with management and vessel personnel to enhance operational safety. Additionally, there were no mentions of these incidents in company emails, or any other documentation reviewed during the investigation.

This oversight highlights a significant failure in the company's incident investigation and reporting system. Marine operating companies must prioritize operational safety by thoroughly investigating all safety incidents, regardless of their perceived severity, and disseminating the findings to improve safety practices. Although the company personnel responded quickly and reasonably to minimize the potential impact of these dangerous situations, they did not benefit from the valuable lessons that could have been learned. Improving the incident investigation system and ensuring transparent communication of all safety incidents are essential steps to enhancing the safety of vessel operations.

8.2.2. Vessel personnel interviewed for this investigation were largely unaware of the circumstances surrounding the fire that occurred on June 7, 2022, on the *Spirit of Norfolk* and the subsequent minor fire on the *Rendezvous*, due to inadequate company outreach or vessel training opportunities. Sharing important lessons learned with vessel personnel provides valuable feedback that enhances safety awareness and improves response during emergencies.

8.2.3. After the fire on the Spirit of Norfolk on June 7, 2022, the emergency response plans for the *Spirit of Boston* were neglected, failing to incorporate crucial lessons learned from the *Spirit of Norfolk* fire and other similar incidents. The emergency response plan for the *Spirit of Boston* was not only outdated but also generic and not tailored to the specific vessel, starkly contrasting with the more updated plan for the *Spirit of Norfolk.* This oversight represents a significant lapse in safety management. Some companies claim to be waiting for Coast Guard or NTSB investigation results before taking action, which is an unacceptable delay. Companies must urgently update their vessel emergency response plans, checklists, and related documents as soon as any safety gaps or deficiencies are identified internally. These updated plans and documents must be

promptly distributed across the fleet to prevent further safety failures and improve operational safety immediately.

8.3. Administrative Recommendations

8.3.1. It is recommended that this investigation be closed.

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[redacted]

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Lead Investigating Officer

List of Acronyms

ABS	American Bureau of Shipping
a.m.	Ante Meridiem
ATF	Bureau of Alcohol, Tobacco, Firearms and Explosives
CFR	Code of Federal Regulations
COI	Certificate of Inspection
CVC	CG Office of Commercial Vessel Compliance
DCO	Deputy Commandant for Operations
DPA	Designated Person Ashore
EDT	Eastern Daylight Time
FD	Fire Department
FR	Federal Register
GRT	Gross Registered Tons
ISM	International Safety Management
ITC	International Tonnage Certificate
MBI	Marine Board of Investigation
MMS	Mission Management System
MOU	Memorandum of Understanding
NTSB	National Transportation Safety Board
NVDC	National Vessel Documentation Center
OCMI	Officer in Charge of Marine Inspections
P.A.S.S.	Pull, Aim, Squeeze, Spread
p.m.	Post Meridian
PVA	Passenger Vessel Association
SMS	Safety Management System
SOLAS	Safety of Life at Sea
USC	United States Code

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