

Title of Investigation:
Fire - Spirit of Boston

Investigation Number:
[REDACTED]

Report Number:
1

ORIGIN AND CAUSE REPORT

SUMMARY:

Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) Certified Fire Investigator (CFI) origin and cause determination. ATF case title: Fire - Spirit of Boston, ATF case number [REDACTED]

SYNOPSIS:

1. On March 24, 2023, at approximately 22:52 hours, the dinner cruise vessel SPIRIT OF BOSTON was moored at World Trade Center Pier, 200 Seaport Boulevard, Boston, Massachusetts, and was damaged by a fire on the Main, Harborview, Deck. The vessel had completed a voyage at 22:00 hours and had aboard hospitality staff who were in the process of cleaning up. A hospitality staff member discovered smoke and flames, alerted the crew, and called emergency services. All persons aboard were alerted to the fire and exited the vessel to the pier. The Boston Fire Department (BFD) responded, extinguished the fire, and overhauled the space.
2. On March 24, 2023, the BFD Fire Department Fire Investigation Unit (FIU) responded to the scene to investigate the fire. The BFD FIU was unable to definitively put a cause to the fire and classified the fire as UNDETERMINED. Please refer to BFD Incident Report [REDACTED], Dated March 24, 2023 (Attachment1).
3. On March 28, 2023, ATF SACFI H [REDACTED] was contacted by ATF SACFI H. M [REDACTED], liaison to the United States Coast Guard (USCG), to advise of a request by the USCG to assist with a major marine casualty investigation by conducting an origin and cause determination of the fire. ATF SACFI H [REDACTED] immediately responded to 300 Terminal Street, the Charlestown Maintenance Facility, where the Spirit of Boston was towed after the fire event, and met with USCG, NTSB, and BFD personnel and discussed the facts and circumstances of the incident.
4. 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.

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|--|---|--------------------------|---------------------|
| Prepared by: M [REDACTED] H [REDACTED] | Title: Special Agent, Worcester Satellite Office | Signature: [REDACTED] | Date: [REDACTED] |
| Authorized by: E [REDACTED] M [REDACTED] | Title: Acting Resident Agent in Charge, Worcester Satellite Office | Signature: | Date: |
| Second level reviewer (optional): [REDACTED] I [REDACTED] | Title: Special Agent in Charge, Boston Field Division | Signature: | Date: |

PARTICIPATING FIRE INVESTIGATORS AND OTHER PERSONNEL:

ATF

SACFI M [REDACTED] H [REDACTED] Lead CFI
Senior Fire Research Engineer B [REDACTED] G [REDACTED] Fire Research Laboratory Testing

United States Coast Guard

Commander M [REDACTED] Investigating Officer
Lieutenant Commander N [REDACTED] E [REDACTED] Subject Matter Expert
Lieutenant Commander F [REDACTED] M [REDACTED] Legal Counsel
Lieutenant T [REDACTED] W [REDACTED] Assistant Investigating Officer
K [REDACTED] F [REDACTED] Marine Casualty Investigator
J [REDACTED] F [REDACTED] Marine Casualty Investigator

National Transportation Safety Board

Fire Investigator N [REDACTED] M [REDACTED] Fire Scene Investigator
Chief Engineer B [REDACTED] Y [REDACTED] Senior Marine Accident Investigator

IDENTIFIED HAZARDS AND INJURIES:

5. The vessel sustained significant fire damage to the Main, Harborview, Deck. The vessel's hull and supporting deck structure remained intact and was determined to be safe for the investigative team to operate in. Typical hazards such as exposed sharp objects, trip, slip, fall, and inhalation hazards were present. There were no reported injuries by Federal/state/local/private investigators during the fire scene investigation.

LEGAL BASIS FOR PRESENCE:

6. On March 28, 2023, ATF was contacted by the United States Coast Guard (USCG) to assist with the investigation of the fire event. On March 28, 2023, USCG allowed ATF onto the vessel to begin the fire scene examination. The fire scene examination was conducted under the authority of a Memorandum of Understanding (MOU) in place between ATF and the USCG.

OWNER/OCCUPANTS:

OWNERS:

7. The Spirit of Boston was owned by Hornblower City Cruises and Events LLC.

OCCUPANTS:

8. The vessel was occupied, at the time of the fire event, by the following Hornblower Employees and an Outside Contractor:
Restaurant Managers: C [REDACTED] G [REDACTED] and Je [REDACTED] K [REDACTED]

Servers: E [REDACTED], M [REDACTED], J [REDACTED], L [REDACTED], M [REDACTED], L [REDACTED], C [REDACTED], M [REDACTED], K [REDACTED], and B [REDACTED]
M [REDACTED]
Server Assistants: S [REDACTED], H [REDACTED], J [REDACTED], F [REDACTED], E [REDACTED], W [REDACTED], and N [REDACTED] S [REDACTED]
Bartenders: M [REDACTED], R [REDACTED], and S [REDACTED] G [REDACTED]
Outside Contractor (DJ): M [REDACTED] C [REDACTED]

VESSEL DESCRIPTION AND HISTORY:



9. The "Spirit of Boston" was classed as a passenger ship, typed as a harbor cruise vessel, and operated as a dinner cruise ship. The Spirit of Boston keel was laid on April 1, 1989, and was delivered for service on April 27, 1990. The Spirit of Boston was identified by primary identification number, 954835, hull number HC279, and USCG number CG025331.
10. The hull was steel construction, with a gross tonnage of 94 tons, net tonnage of 64 tons, an overall length of approximately 152.9 feet from bow to stern, a beam of approximately 40 feet, and a height of 39 feet. The Spirit of Boston utilized diesel fuel reduction for propulsion, equipped with two (2) diesel fuel tanks with a capacity of 1632 gallons each, and was powered by four (4) engines with a horsepower rating of 1006 horsepower.
11. The Spirit of Boston was a four (4) level dining vessel with three (3) interior climate controlled dining decks and two (2) exterior observation decks. The decks are identified as the Bridge

(Skydeck), Balcony (Skyline), Upper (Esplanade), and Main (Harborview) with a passenger capacity of 600 people. The engine room, fuel tanks, and galley stores were below deck.

12. The Bridge, Skydeck, was the uppermost level and consisted of an enclosed control room and a furnished exterior patio aft with two (2) exterior stairways which led down to the Balcony, Skyline Deck.
13. The Balcony, Skyline Deck, consisted of an enclosed dining area, a buffet serving line, a full service bar, and an open curved interior stairway, forward in the dining area, which led down to the Upper, Esplanade Deck. The central portion of the deck was open to the Upper, Esplanade, Deck below. There was an exterior patio forward of the enclosed dining area with an exterior stairway which led down to the Upper, Esplanade Deck. There was an exterior patio aft of the enclosed dining area, which contained a full service bar, and an exterior stairway which led down to the Upper, Esplanade Deck.
14. The Upper, Esplanade Deck, was the boarding deck. The vessel was boarded from the port side aft via a portable gangway from the dock. The Upper Esplanade Deck, consisted of an enclosed dining area, a buffet serving line, a forward wait staff service area, a full service bar, restrooms, dance floor, and the curved interior stairway forward which led up to the Balcony, Skyline Deck, of which the central portion of the deck, above the dance floor, was open to the Balcony, Skyline, Deck above. There was also an interior stairway midship in the dining area which led to the Main, Harborview, Deck, and an aft stairway which led down to the Main, Harborview, Deck. There was an exterior patio forward of the enclosed dining are with an exterior stairway which led down to the Main, Harborview, Deck. There was an exterior stairway aft which led down to the Main, Harborview, Deck.
15. The Main, Harborview, Deck, consisted of a split level enclosed dining area, a buffet serving line, a port aft wait staff service area, the galley and food preparation area and kitchen. The forward elevated dining area contained a full service bar. There were two (2) interior midship stairways in the dining area which led below deck and an aft stairway in the galley area which led up to the Upper, Esplanade Deck. The aft exterior portion of the vessel was open and contained beverage coolers and crew maintenance supplies. The aft exterior open portion was enclosed with visqueen style plastic screen.
16. Below deck consisted of the engine room, fuel tanks, galley stores, and crew storage lockers. The compartments for each purpose were separated.

FIRE PROTECTION SYSTEMS:

17. The vessel was equipped with a Honeywell brand, model Notifier NFS-320, fire alarm control panel (FACP). The FACP monitored the heat and smoke alarms located throughout the vessel, and it was located in the wheelhouse located on the upper deck. The vessel was also equipped with a Gamewell brand, model FCI, fire alarm annunciator panel which monitored and advised of fire door status for the galley fire doors, watertight door, galley stores fire doors, and "Deck 2" (Balcony, Skyline, Deck) fire doors. Pull stations were located throughout the vessel for fire door actuation, and galley stores and engine room vent fire damper release. Portable fire extinguishers were also located throughout the vessel. There were also fire hydrants equipped with hoses and nozzles located throughout the interior and on the exterior of the vessel.

WITNESS STATEMENTS:

18. Members of the investigative team conducted numerous interviews as part of the investigation. This section serves to document the pre-fire condition of the vessel, activities taking place within the vessel and the exterior of the vessel, fire discovery, fire department response, and witness observations. The following are summaries of the statements and testimony provided by the witnesses during the USCG major marine casualty formal investigation.

█ F █, Assistant Server, Hornblower City Cruises

19. On April 7, 2023, █ F █, Assistant Server, for Hornblower City Cruises, was interviewed by investigators at the Hornblower City Cruises office and provided the following statement. USCG Marine Casualty Investigator K. F █ began the interview. F █ stated █ worked for Hornblower City Cruises for approximately fifteen (15) years. F █ stated █ usually works on another Hornblower City Cruises vessel, the Odyssey, which is another dinner cruise venue.

20. F █ stated █ was working the day of the fire event. F █ was working on the Main, Harborview Deck, cleaning up at the end of the shift. F █ stated a co-worker, S █ B █, smelled smoke, discovered the fire, and alerted the employees. F █ stated █ did not smell smoke or see the fire until █ got off the boat. F █ also stated █ heard the fire alarm sounded "as soon as the smoke came up."

21. F █ stated the small paraffin oil filled candles were not being used and had been blown out. F █ stated empty paraffin oil filled candles had been thrown away in the trash can in the port aft wait staff station but the trash can had been emptied prior to the fire event. F █ could not recall who emptied the trash.

22. F █ stated the Sterno brand chaffing fuel containers used that night "were already burned out," and when they're empty, they are thrown out by the "galley guys." F █ stated █ did not see any thrown away that night. The port aft wait staff station had a coffee service carafe warmer which used a Sterno brand chaffing fuel container. F █ stated there was no coffee made that night.

23. F █ stated that customers could use small wax candles for birthday parties and other celebrations but there were none the day of the fire event.

24. F █ stated passenger smoking was not allowed. F █ stated crew smoking was allowed but not in sight of the customers. F █ stated the crew smoked behind the galley on what was described as a porch. F █ stated █ had seen crew smoking there before. █ stated █ never saw anyone use an ashtray or bucket to dispose of their smoking materials, and only saw cigarette butts thrown into the ocean. F █ stated █ had seen crew members smoking electronic cigarettes, also referred to as vape pens on the porch behind the galley.

25. On May 16, 2023, █ F █, Assistant Server, for Hornblowers Cruises was reinterviewed by investigators at the Coast Guard District Office in Boston and provided the following statement.

26. F [REDACTED] stated that [REDACTED] was correct in recalling that [REDACTED] threw one (1) paraffin candle away in the trash in the port aft wait staff station. F [REDACTED] stated "I had not seen anybody smoke or vape on the Spirit of Boston."
27. F [REDACTED] was then asked to view security camera surveillance video labeled [REDACTED]. The camera faced aft to forward. The video depicted the Spirit of Boston pantry and the hallway in front of the port aft wait staff station prior to the fire event. F [REDACTED] confirmed [REDACTED] was depicted in the video.



28. F [REDACTED] was asked about [REDACTED] actions in the video clip. F [REDACTED] stated after the dinner cruise was over, [REDACTED] noticed what appeared to be a puddle on the deck in the port aft wait staff station. F [REDACTED] stated [REDACTED] did not slip on the liquid. F [REDACTED] stated [REDACTED] was cleaning what [REDACTED] believed to be water off the floor because the glasses stored in the port aft wait staff station had been cleaned in the dishwasher. F [REDACTED] described the amount of water in size to be approximately the size of a small dish about five inches (5") in diameter. F [REDACTED] stated it was a clear liquid and did not have an odor. F [REDACTED] stated [REDACTED] did not tell anyone [REDACTED] cleaned up something that had spilled on the deck. F [REDACTED] stated [REDACTED] did not see anyone drop anything on the floor that could have caused the spill. F [REDACTED] stated after [REDACTED] finished cleaning up the liquid [REDACTED] put the rag in the linen bin.
29. F [REDACTED] identified the location of the spill as being "being near where the glasses are stored." F [REDACTED] stated the glasses were stored in three (3), bright blue, glass racks made of hard plastic. F [REDACTED] stated the described racks, as well as glass racks for wine glasses and coffee cups and a metal wire rack shelving unit were along the back wall of the port aft wait staff station that was the entrance to the galley.

30. F█████ stated in the approximately two minutes and forty seconds (2:40) █████ was not visible on the video █████ was in the port aft wait staff station cleaning. For reference in the interview F█████ described the port aft wait staff station as the "bus station."
31. F█████ described █████ cleaning duties included putting away the coffee cups and sugar. F█████ stated "all the coffee was poured out." F█████ stated █████ did not see any Sterno brand chaffing fuel containers in the area of the glass racks where the glasses were stored. F█████ stated █████ did not see any Sterno brand chaffing fuel containers in the trash.
32. F█████ stated █████ never saw anyone with an electronic cigarette or vape pen. F█████ stated █████ never saw an electronic cigarette or vape pen in a trash can aboard the vessel.
33. F█████ stated █████ was alerted to the fire at the same time the other crew members were. F█████ stated when other crew members went to investigate the fire █████ did not know why █████ froze. F█████ stated █████ heard a popping sound like someone was popping popcorn or fireworks. F█████ did not know what caused the popping sound.
34. F█████ was asked if the paraffin oil filled candle could have leaked onto the deck to which █████ answered "Not to my knowledge. F█████ was asked if a Sterno brand chaffing fuel container could have leaked on the floor to which █████ answered "Not to my knowledge."
35. F█████ was asked to describe the coffee station and coffee station clean up procedure. F█████ stated on the night of the fire event there was a Sterno brand chaffing fuel container under the coffee warmer "but it was burnt, it had been extinguished." F█████ stated █████ believed it was extinguished because it did not have a label on it. F█████ stated the Sterno brand chaffing fuel container had been removed from under the coffee warmer. F█████ stated the Sterno brand chaffing fuel container was on the port aft wait staff station ("bus station") counter. F█████ stated █████ picked up the Sterno brand chaffing fuel container, shook it to make sure there was no liquid in it, and threw it away. F█████ stated █████ threw the Sterno brand chaffing fuel container away in the trash can "next to the bus station" (port aft wait staff station).
36. F█████ stated that █████ had never thrown a Sterno brand chaffing fuel container away before. F█████ stated the galley crew throws them away. F█████ stated █████ "didn't feel anything" and if █████ had she would have called someone for help. F█████ stated █████ believed there was no liquid in the Sterno brand chaffing fuel container because when █████ shook it there was no sloshing effect. F█████ stated she dropped the Sterno brand chaffing fuel container into the trash can. F█████ was asked if there was anyway the Sterno brand chaffing fuel container could have gotten onto the floor to which █████ answered "Not to my knowledge".
37. F█████ stated █████ could see the wick. F█████ stated the Sterno brand chaffing fuel container for the coffee was lit before the cruise started and kept the coffee warm the entire cruise. F█████ stated the cruise that night was three (3) hours long. F█████ stated the Sterno brand chaffing fuel container was cold to the touch when █████ picked it up.
38. F█████ stated █████ threw the Sterno brand chaffing fuel container away after the cruise, after █████ brought all the salt and pepper shakers back, after cleaning up the liquid off the floor, and prior to "doing the linens."

39. Hornblower City Cruises attorney E. D. [REDACTED] began the asked F. [REDACTED] about the rag and the video [REDACTED] was shown. F. [REDACTED] stated to E. D. [REDACTED] did not clean up any liquid on the deck and only dropped the rag and picked it up to put in the "proper disposal area."
40. USCG Marine Casualty Investigator K. F. [REDACTED] continued the interview. F. [REDACTED] stated [REDACTED] did "Not usually" shake a Sterno brand chafing fuel container to determine if there was liquid in it. F. [REDACTED] stated after [REDACTED] wiped up the spilled liquid "The deck was dry as a bone."
41. E. D. [REDACTED] continued the interview. F. [REDACTED] stated the Sterno brand chafing fuel container was located on the table where the coffee pot was. F. [REDACTED] stated the [REDACTED] removed the coffee pot and poured out the coffee then retrieved the Sterno brand chafing fuel container. F. [REDACTED] was asked if [REDACTED] extinguished the Sterno brand chafing container initially when [REDACTED] cleaned the coffee station. F. [REDACTED] stated "No, it was already out by the time I got back." F. [REDACTED] stated the Sterno brand chafing fuel container was extinguished approximately thirty (30) minutes prior to [REDACTED] throwing it in the trash can. F. [REDACTED] stated [REDACTED] did not know who extinguished it." F. [REDACTED] stated there was an exposed wick and there was no lid on the Sterno brand chafing fuel container when [REDACTED] threw it in the trash can.

S. [REDACTED] H. [REDACTED], Assistant Server, Hornblower City Cruises

42. On April 4, 2023, S. [REDACTED] H. [REDACTED], Assistant Server, for Hornblower City Cruises, was interviewed by investigators at the Hornblower City Cruises office and provided the following statement. USCG Marine Casualty Investigator K. F. [REDACTED] began the interview. [REDACTED] stated [REDACTED] had worked for Hornblower City Cruises for almost one (1) year but had worked on other dinner cruise ships in the past.
43. H. [REDACTED] stated the night of the fire event [REDACTED] cellular telephone was stored on an upper metal shelf along the forward side of the port aft wait staff station. H. [REDACTED] stated her cellular phone was not charging. H. [REDACTED] stated [REDACTED] was going to check [REDACTED] phone to see if [REDACTED] had any calls and as [REDACTED] looked up from her duties to go check [REDACTED] cellular telephone [REDACTED] saw smoke. H. [REDACTED] went to investigate and when [REDACTED] got to the port aft wait staff station [REDACTED] "heard something down below" and saw "a spark... coming from underneath where we house the glasses which is in a plastic glass bin where they all have their own individual little slots. The sparks was just moving underneath there, where those bins where."
44. H. [REDACTED] stated the plastic bins, approximately five (5) or six (6) were stacked on a roller with wheels. H. [REDACTED] stated the glass racks were tan and blue. H. [REDACTED] stated there was a strong "different smell... wasn't your normal like fire." H. [REDACTED] stated it was a "different" and "stronger" smell compared to [REDACTED] next door neighbor's house fire she experienced.
45. H. [REDACTED] stated the glass racks were stored along the aft wall of the port aft wait staff station along the adjoining wall with the pantry. H. [REDACTED] stated along the aft wall, of the port aft wait staff station, from the hallway to the outboard wall was a two (2) tier rolling cart, one (1) trash can, possibly one (1) linen bin, the described glass racks, a second glass rack for fluted glasses, and a metal wire storage rack. He [REDACTED] stated there were no electrical items stored or used along the aft wall of the port aft wait staff station.

46. ██████ stated the "spark" was moving around under the stacked glass racks which were stored along the aft wall of the port aft wait staff station and it seemed like it was connected to something because it was not staying still. H ██████ stated at that time ██████ did not see an actual fire, just the sparks. H ██████ stated ██████ called ██████ supervisor, C ██████ G ██████, the restaurant manager and exited the vessel.
47. H ██████ stated after ██████ exited the vessel, and was on the dock, ██████ looked in the window of the port aft wait staff station and saw the sparks turning into a flame. He ██████ stated the flame was coming out from under the stacked glass racks. H ██████ stated it looked like "maybe oil or something running down, but the floor was burning." H ██████ stated it looked like the actual floor was burning. H ██████ stated the fire was pouring out from under the stacked glass racks and eating away at the floor.
48. H ██████ stated that after the cruise was over the night of the fire event the paraffin oil filled candles were separated from the votives. H ██████ stated ██████ collected the paraffin oil filled candles and brought them to the Second, Upper Esplanade, Deck where they were going to be used the next day. H ██████ stated the paraffin oil level would not be checked until the following day for set up. H ██████ stated the paraffin oil filled candles are not thrown away, even if they are empty after a cruise, because they are not checked until the following day before use during set up. H ██████ stated the paraffin oil filled candles are thrown in the regular trash when they are empty. H ██████ stated the day of the fire ██████ did not have to change out any paraffin oil filled candles.
49. H ██████ was asked about wax candle usage the night of the fire event for any special occasions. H ██████ stated ██████ recalled a slice cake and the crew was looking for a wax candle for it. H ██████ B ██████ stated ██████ did not know where wax candles were on the vessel and if a wax candle was found and/or used to slice a cake. H ██████ stated a person named "█████" was looking for a wax candle and "assumed" a wax candle was found but ██████ never saw one.
50. H ██████ stated ██████ lit a Stermo brand chafing fuel container for the coffee service station and that ██████ extinguished the coffee service Stermo brand chafing fuel container at least fifteen (15) to twenty (20) minutes before the cruise ended. H ██████ stated the coffee service station was "In the area where the wait station is." H ██████ stated ██████ used a long handle Bic brand style portable lighter with a safety trigger to light the Stermo brand chafing fuel container.
51. H ██████ described the coffee service station as a two (2) sided coffee maker with a metal stand with a place for a chafing fuel container. H ██████ stated there is a chafing fuel container under the coffee "all the time." and "it stays there until you come back to pour the coffee out, at a time when we're cleaning." H ██████ stated ██████ put the Stermo brand chafing fuel container out the night of the fire event. H ██████ stated ██████ would put the top on it if she could find it to extinguish the Stermo brand chafing fuel container. H ██████ stated if ██████ could not find the top ██████ would blow it out to extinguish it. H ██████ stated after the Stermo brand chafing fuel container was extinguished it was left for awhile, at least fifteen (15) to twenty (20) minutes.
52. H ██████ stated ██████ could not remember if ██████ had blown out or capped the Stermo brand chafing fuel container but that it was out. H ██████ stated after the Stermo brand chafing fuel container had cooled off ██████ threw it in the trash in the port aft wait staff station.

53. H [REDACTED] stated the Sterno brand chafing fuel containers that were used for the dinner buffet service were extinguished and thrown away by the crew. H [REDACTED] stated those would have been extinguished much earlier in the evening because the dinner service ended and was cleaned up much sooner than the coffee service. H [REDACTED] stated the galley crew was responsible for extinguishing and throwing away the Sterno brand chafing fuel containers. H [REDACTED] stated the marine crew was responsible for emptying the trash and putting new liners in the trash cans. H [REDACTED] stated the trash was removed every night.
54. H [REDACTED] stated after [REDACTED] threw the Sterno brand chafing fuel container in the trash the marine crew took out the trash and put a new liner in the trash can in the port aft wait staff station. H [REDACTED] stated during normal closeout and cleaning the trash would have emptied by 22:30 hours at the latest. H [REDACTED] stated that after the trash had been emptied, with the Sterno brand chafing fuel container, miscellaneous items were thrown in the described trash can in the port aft wait staff station to include napkins and plastic cups. H [REDACTED] stated [REDACTED] did not remember anything "out of the ordinary" thrown away in the described trash can in the port aft wait staff station.
55. H [REDACTED] stated passengers did not have access to the port aft wait staff station or the galley area. H [REDACTED] stated [REDACTED] was unaware of any passengers in the port aft wait staff station.
56. H [REDACTED] stated passengers and crew had to be outside to smoke cigarettes. H [REDACTED] stated [REDACTED] did not see anyone smoking cigarettes. H [REDACTED] stated [REDACTED] did not see anyone use an electronic cigarette or vape the night of the fire event.
57. Hornblower City Cruises attorney E. D [REDACTED] then interviewed H [REDACTED]. H [REDACTED] reiterated that [REDACTED] extinguished the Sterno brand chafing fuel container but could not recall if [REDACTED] blew it out or put a cap on it. H [REDACTED] stated "It's hard." to blow out a Sterno brand chafing fuel container. H [REDACTED] stated [REDACTED] "believed" she poured the coffee out the night of the fire event. H [REDACTED] stated "I assume" I took the Sterno brand chafing fuel container out from under the coffee service. H [REDACTED] stated "you have to take it out and put it aside while you pour out the coffee." H [REDACTED] stated that the Sterno brand chafing fuel container was "absolutely out."
58. [REDACTED] stated after [REDACTED] extinguished the Sterno brand chafing fuel container it sat there until the end of the cruise, after it was not hot and all the clean up was done, and the coffee was poured out, [REDACTED] threw out the Sterno brand chafing fuel container. H [REDACTED] stated [REDACTED] remembered throwing the Sterno brand chafing fuel container in the port aft wait staff station trash can because "that's the closest trash can." H [REDACTED] stated the port aft wait staff station trash is one of the main trash cans and [REDACTED] remembered a crew member taking that trash can out after [REDACTED] threw out the Sterno brand chafing fuel container because when she later threw something away it had a new trash bag in it.
59. H [REDACTED] stated [REDACTED] did not throw away any paraffin oil filled candles. H [REDACTED] stated all the paraffin oil filled candles were collected and [REDACTED] brought them all to the Second, Upper, Esplanade, Deck. H [REDACTED] stated there were not enough for the set up the next day and even if one had been empty it would not have been thrown away the night of the fire event because it would not have been checked until the next day when they were going to be lit.
60. H [REDACTED] stated after [REDACTED] was on the dock and looking through the window the "flame was solely coming from underneath...the trays of glasses where I saw the spark." H [REDACTED] stated the "trash

cans and everything were out of the way.”, “there was nothing else...right next to it...” and the fire was rolling on the floor.

C [REDACTED] G [REDACTED], Restaurant Manager, Hornblower City Cruises

61. On April 4, 2023, C [REDACTED] G [REDACTED], Restaurant Manager, for Hornblower City Cruises, was interviewed by investigators at the First Coast Guard District Legal Conference Room and provided the following statement. USCG Lieutenant Commander (LCDR) N. E [REDACTED] began the interview. G [REDACTED] stated [REDACTED] had worked for Hornblower City Cruises for approximately six and a half (6 ½) years.
62. G [REDACTED] stated [REDACTED] was working on the Main, Harborview, Deck when one of the other employees, S [REDACTED] H [REDACTED], an assistant server, called out [REDACTED] name and told [REDACTED] thought something was on fire. G [REDACTED] stated [REDACTED] turned around from where [REDACTED] was sitting and saw smoke. G [REDACTED] stated [REDACTED] walked over to the port aft wait staff station and saw sparks from what looked like the wall. G [REDACTED] stated suddenly there were flames on the floor. G [REDACTED] stated [REDACTED] made the decision to evacuate the vessel as it seemed to [REDACTED] the fire was spreading rapidly and the hospitality crew was not trained to fight fires.
63. G [REDACTED] detailed the port aft wait staff station and [REDACTED] experience with the fire. G [REDACTED] stated there was not usually a black trash can in the port aft wait staff station. G [REDACTED] stated along the aft wall of the port aft wait staff station, which adjoined the pantry, there was a metal wire shelf next to the window, two (2) rolling carts with water glasses stored in racks side by side, and a yellow bin for dirty linen. G [REDACTED] stated the glass racks were red, blue, and tan. G [REDACTED] stated usually a black trash can is in the pantry. G [REDACTED] stated all the other wait staff stations had trash cans but the port aft wait staff station was small and due to space considerations and usually staff brought trash to the galley.
64. G [REDACTED] stated when [REDACTED] first saw smoke [REDACTED] thought something was burning in the galley and [REDACTED] did not think there was a fire. G [REDACTED] stated when [REDACTED] looked into the port aft wait staff station [REDACTED] saw sparks shooting from between the wall and the glass racks. G [REDACTED] stated the flames started “coming from underneath those water racks.” G [REDACTED] stated the fire was spreading from underneath the racks. G [REDACTED] stated the flames started “moving towards me from the wall.” G [REDACTED] stated [REDACTED] never saw the trash can on fire. G [REDACTED] stated that when [REDACTED] saw the fire, on board the vessel and from the dock, the flames were not even close to the trash can.
65. G [REDACTED] stated table settings had one paraffin oil filled candle in a votive in the center of each table. G [REDACTED] stated the paraffin oil filled candles are reusable and last six (6) hours. G [REDACTED] stated at the end of the cruise the paraffin oil filled candles are blown out. G [REDACTED] stated the paraffin oil filled candles are not thrown away at night. G [REDACTED] stated the procedure is to check the status of the paraffin oil filled candles before a cruise. G [REDACTED] stated at night after a cruise the paraffin oil filled candles were blown out and left on the table or put in a bin and checked before the next cruise and refilled if necessary. G [REDACTED] stated the night of the fire event all the votives were brought up to the Second, Upper, Esplanade, Deck, where they were needed for the next cruise.
66. G [REDACTED] stated passengers were not allowed to smoke on the vessel. G [REDACTED] stated [REDACTED] has never seen passengers smoke during a cruise. G [REDACTED] stated staff was allowed to smoke in designated areas out of view from the passengers. G [REDACTED] stated the only designated staff smoking area was outside

behind the galley. G [REDACTED] did not know where or how staff disposed of their smoking materials. G [REDACTED] did not know if any staff smoked the night of the fire event after the cruise.

67. G [REDACTED] stated passengers were not allowed in the galley area. G [REDACTED] stated that [REDACTED] has, in the past, but not the night of the fire event, gone into the galley area to throw trash away. G [REDACTED] stated there were no problems with passengers the night of the fire event and nothing out of the ordinary happened during the cruise.
68. G [REDACTED] stated Sterno brand chafing fuel containers were stored in the port aft wait staff station on either the metal wire shelf or on the window sill in boxes. G [REDACTED] stated there was only one (1) trash can specifically on the Main, Harborview, Deck for trash which was the one described as being stored in the pantry or port aft wait staff station. G [REDACTED] stated the specified trash can was plastic. G [REDACTED] stated the linen bins were yellow.
69. Hornblower City Cruises attorney E. D [REDACTED] interviewed G [REDACTED]. G [REDACTED] stated [REDACTED] had no contact with the Sterno brand chafing fuel containers the night of the fire event. G [REDACTED] stated all the votives were brought up to the Second, Upper, Esplanade, Deck before the fire.

[REDACTED] D [REDACTED], Senior Deckhand, Hornblower City Cruises

70. On April 5, 2023, [REDACTED] D [REDACTED], Senior Deckhand for Hornblower City Cruises, was interviewed by investigators at the First Coast Guard District Conference Room and provided the following statement. USCG Lieutenant T. W [REDACTED] began the interview.
71. D [REDACTED] stated he emptied the Deck 2, Upper, Esplanade, and Deck 3, Balcony, Skyline, Deck, wait staff station trash cans, which meant the trash was taken to Deck 1, Main, Harborview, aft porch area. D [REDACTED] stated the galley staff removed the trash from the galley areas.
72. D [REDACTED] stated [REDACTED] made a cup of tea in the port aft wait staff station using the hot water from a spigot from the coffee service machine. D [REDACTED] stated [REDACTED] did not recall seeing any Sterno brand chafing fuel containers when [REDACTED] made his tea. D [REDACTED] stated [REDACTED] had never seen a Sterno brand chafing fuel container thrown in a trash can. D [REDACTED] stated [REDACTED] saw Sterno brand chafing fuel containers under the trays for the buffet service. D [REDACTED] stated [REDACTED] understanding of the Sterno brand chafing fuel container disposal procedure was for the galley staff to collect them and place them in a bucket of water and threw them in the trash after collection in the bucket of water. D [REDACTED] stated [REDACTED] is not responsible for and has never disposed of Sterno brand chafing fuel containers.
73. D [REDACTED] stated he did not see any birthday, or other celebratory event, candles being used the night of the fire event. D [REDACTED] stated [REDACTED] did not see anything out of the ordinary the night of the fire event.
74. D [REDACTED] stated the passenger smoking area was on the Skydeck directly by the Bridge. D [REDACTED] stated [REDACTED] did not see passengers smoking the night of the fire event. D [REDACTED] stated the crew smoking area was outside the stern deck on the Main, Harborview, Deck. D [REDACTED] stated there was no formal ashtray and the crew used buckets to dispose of smoking materials. D [REDACTED] stated he has never seen a crew member smoke inside the vessel.

75. Hornblower City Cruises attorney E. D. [REDACTED] interviewed D. [REDACTED]. D. [REDACTED] stated he was not aboard the vessel when the fire event occurred and was notified the next morning the fire event had occurred.

[REDACTED] M. [REDACTED], Server, Hornblower City Cruises

76. On April 4, 2023, E. [REDACTED] M. [REDACTED], Server, for Hornblower City Cruises, was interviewed by investigators at the First Coast Guard District Conference Room and provided the following statement. USCG Lieutenant Commander (LCDR) N. E. [REDACTED] began the interview. M. [REDACTED] stated [REDACTED] worked for Hornblower City Cruises for [REDACTED] years.

77. M. [REDACTED] stated [REDACTED] came down from the Upper, Esplanade, Deck to retrieve a silverware tray. M. [REDACTED] stated [REDACTED] smelled plastic burning but did not think anything of it because [REDACTED] thought it was something food related in the galley and went back upstairs. M. [REDACTED] described the smell as putting a plastic spoon on the stove and it was melting. M. [REDACTED] stated [REDACTED] was alerted to the fire several minutes later.

78. M. [REDACTED] stated there were no birthday or other celebratory events in [REDACTED] dining section that used candles the night of the fire event.

79. M. [REDACTED] stated no one person was responsible for taking out the trash.

80. M. [REDACTED] stated he believed there was a no smoking policy for guests aboard the vessel and told all guests there was no smoking aboard. M. [REDACTED] stated [REDACTED] did not see anyone smoking the night of the fire event.

81. M. [REDACTED] stated [REDACTED] did not handle Sterno brand chafing fuel containers. M. [REDACTED] stated [REDACTED] was aware Sterno brand chafing fuel containers were used to heat the food for the buffet service but the galley crew extinguished them.

[REDACTED] M. [REDACTED], Mate, Hornblower City Cruises

82. On April 5, 2023, J. [REDACTED] M. [REDACTED], Mate, for Hornblower City Cruises, was interviewed by investigators at the First Coast Guard District Conference Room and provided the following statement. USCG Marine Accident Investigator K. F. [REDACTED] began the interview. M. [REDACTED] stated [REDACTED] worked for Hornblower for approximately [REDACTED] year.

83. M. [REDACTED] stated there was a no smoking policy onboard the Spirit of Boston for passengers. M. [REDACTED] stated that crew members could smoke onboard. M. [REDACTED] stated [REDACTED] had not seen any crew members smoke aboard the Spirit of Boston. Morneau state he did not see any celebratory events onboard the night of the fire event which would have used candles.

84. M. [REDACTED] stated [REDACTED] was the Mate who transferred the vessel over to shore power. M. [REDACTED] stated that when the vessel is on shore power certain heating, ventilation, and air-conditioning (HVAC) air handling units (AHU) are still functioning because one (1) specified breaker is turned back on to circulate seawater through a heat exchanger for air circulation.

[REDACTED] K. [REDACTED], Restaurant Manager, Hornblower City Cruises

85. On April 4, 2023, J. [REDACTED] K. [REDACTED], Restaurant Manager, for Hornblower City Cruises, was interviewed by investigators at the First Coast Guard District Conference Room and provided the following statement. USCG Lieutenant T. W. [REDACTED] began the interview. K. [REDACTED] stated [REDACTED] worked for Hornblower City Cruises for approximately [REDACTED].
86. K. [REDACTED] stated the night of the fire event [REDACTED] was working on the Main, Harborview, Deck, with C. [REDACTED] G. [REDACTED], Restaurant Manager, and S. [REDACTED] H. [REDACTED], Server Assistant. K. [REDACTED] stated that as [REDACTED] was doing paperwork and saw H. [REDACTED] walk toward the stern of the vessel. K. [REDACTED] stated as H. [REDACTED] was walking [REDACTED] commented there was smoke coming from behind the port aft aft side wait staff station. K. [REDACTED] stated [REDACTED] and G. [REDACTED] got up and walked toward the port aft wait staff station.
87. K. [REDACTED] stated at first [REDACTED] only saw smoke. K. [REDACTED] stated when [REDACTED] looked into the port aft wait staff station [REDACTED] saw flames "right underneath that glass rack with the wheels." K. [REDACTED] stated the fire did not look like a typical fire where something had caught fire. K. [REDACTED] described the fire as a "squiggly...line of fire basically in the form of like a snake basically going across the floor." K. [REDACTED] stated the flames were "minor". K. [REDACTED] stated [REDACTED] was approximately four (4) feet (4') away from the fire when [REDACTED] made his observations. K. [REDACTED] stated [REDACTED] smelled a burning rubber odor. K. [REDACTED] stated the fire "was just on the ground." K. [REDACTED] stated nothing else was on fire. K. [REDACTED] stated the flames were several inches in height. K. [REDACTED] stated [REDACTED] heard what [REDACTED] described as a very high pressure noise similar to an air compressor while discharging compressed air. K. [REDACTED] stated after [REDACTED] observed the fire, [REDACTED] went into the pantry, then exited the vessel.
88. K. [REDACTED] described the layout of the port aft wait staff station. K. [REDACTED] stated along the aft, adjoining wall with the pantry beginning from the port side hull was a metal wire shelving rack, two (2) rolling glassware storage racks with four (4) or five (5) glassware storage racks, and yellow linen containers. K. [REDACTED] stated on rare occasions there will be a trash container next to the linen container, inboard, near the doorway.
89. K. [REDACTED] stated the trash container was usually along the galley wall by the stairway to the Upper, Esplanade, Deck, K. [REDACTED] stated [REDACTED] did not remember if there was a trash container in the port aft wait staff station the night of the fire event. K. [REDACTED] stated the servers usually empty the trash containers from the wait staff stations.
90. K. [REDACTED] stated because of the type of dinner cruise, and associated passengers, the night of the fire event, there would not have been anything utilized from the port aft wait staff station except the coffee pot. K. [REDACTED] stated the wait staff would only be responsible for emptying the coffee pot and re-racking it. K. [REDACTED] stated the coffee station was heated with Sterno brand chafing fuel containers and it was the servers responsibility to make sure the Sterno brand chafing fuel containers were in place. K. [REDACTED] stated that most of the time the galley staff lights the Sterno brand chafing fuel containers and either the galley staff, servers, or server assistants were responsible for disposing of Sterno brand chafing fuel containers. K. [REDACTED] stated the servers were responsible for setting up the coffee service. K. [REDACTED] stated the usual procedure [REDACTED] was aware of for disposing of Sterno brand chafing fuel containers was the galley staff would collect them in a water filled bucket before disposing of them. K. [REDACTED] stated [REDACTED] did not dispose of any Sterno brand chafing fuel containers the night of the fire event.

91. K [REDACTED] stated the night of the fire event there were no problems with the cruise, passengers, or crew. K [REDACTED] stated there were no celebratory event which used candles the night of the fire event.
92. K [REDACTED] stated the smoking policy aboard the Spirit of Boston just changed several weeks before the fire event to non-smoking for passengers, however the safety announcement had not changed. K [REDACTED] stated passengers had been allowed to smoke on the Bridge, Sky, Deck. K [REDACTED] stated the crew was allowed to smoke and disposed of their smoking materials in a bucket. K [REDACTED] stated [REDACTED] never saw anyone smoke on board the vessel the night of the fire event. K [REDACTED] stated [REDACTED] never saw anyone smoke in the galley, pantry, or port aft wait staff station. K [REDACTED] stated no one used electronic cigarettes or vape pens the night of the fire event.
93. K [REDACTED] stated the night of the fire event [REDACTED] did not see anyone dispose of any of the paraffin oil filled candles.
94. Hornblower City Cruises attorney E. D [REDACTED] then interviewed K [REDACTED]. K [REDACTED] stated the snake of fire was "less than a foot" and it was entirely underneath the glass rack. K [REDACTED] stated the hissing sound was louder near the port aft wait staff station than the table [REDACTED] was sitting at prior to observing the fire. K [REDACTED] also described the sound as "continuous". K [REDACTED] stated [REDACTED] could not identify the source of the sound or the cause for it.
95. An eleven (11) second video was taken, by a witness, from the dock. The video was not attributed to anyone specified in the investigation. Below is a screen capture of the video.



Screen Capture of Cellular Telephone Video of Fire Taken From Elevated Position on Dock, Looking into the Vessel, Through the Window of the Port Aft Wait Staff Station (Area of Origin)

VIDEO ANALYSIS:

96. Two (2) video recordings of the dining room and one (1) video recording of the aft galley hallway were reviewed and analyzed for evidentiary value to determine the origin and cause for the fire. The Spirit of Boston used two (2) video recording systems. Below is a depiction of the synchronized videos reviewed at approximately the time the fire was discovered. It should be noted the actual times are not identical and are all approximately nine (9) minutes behind actual time as determined by USCG.



97. The security camera surveillance videos labeled [REDACTED], and [REDACTED] were synchronized. Those video recordings began at 22:00:00 hours and were 54:09 minutes long. The videos depicted the Main, Harborview, Deck dining room facing forward to aft. The port aft wait staff station was seen in the video in the upper right corner of each video. The review below used the time depicted for video [REDACTED] for both dining room videos for clarity. The videos revealed the following:

- 22:36:55 J [REDACTED] F [REDACTED] exits the hallway by port aft wait staff station
- 22:37:17 J [REDACTED] F [REDACTED] enters the hallway by port aft wait staff station
- 22:39:27 J [REDACTED] F [REDACTED] exits the hallway by port aft wait staff station
- 22:47:17 J [REDACTED] F [REDACTED] enters the hallway by port aft wait staff station
- 22:47:33 J [REDACTED] F [REDACTED] exits the hallway by port aft wait staff station
- 22:47:36 J [REDACTED] F [REDACTED] enters the hallway by port aft wait staff station
- 22:48:00 J [REDACTED] F [REDACTED] exits the hallway by port aft wait staff station
- 22:48:35 J [REDACTED] F [REDACTED] yawns and stretches
- 22:49:20 J [REDACTED] F [REDACTED] enters the hallway by port aft wait staff station
- 22:49:30 J [REDACTED] F [REDACTED] exits the hallway by port aft wait staff station
- 22:52:08 S [REDACTED] F [REDACTED] walks toward port aft wait staff station passing J [REDACTED]
F [REDACTED] who stands idle
- 22:52:33 Crew members are seen rushing towards port aft wait staff station passing

- 22:52:51 [REDACTED] F [REDACTED] standing idle
- 22:52:51 Crew members exit the vessel. J [REDACTED] F [REDACTED] exits with crew members
- 22:52:58 Noticeable lighting condition change
- 22:53:31 Noticeable smoke
- 22:54:45 – 22:57:45 Video skip visible fire effect and smoke movement
- 22:58:31 Fire vents port aft wait staff station
- 22:59:30 – 22:59:45 Video skip to end of recording

98. A review of the security camera surveillance video labeled [REDACTED], the video was 40:19 minutes long: The video depicted the Main, Harborview, Deck galley hallway from the pantry to the midship aft wait staff station facing aft to forward. The port aft wait staff station is out of view past the partition wall. A review of the video revealed the following:

- 22:45:18 Captain S [REDACTED] walked aft past port aft wait station from midship
- 22:45:39 Server E [REDACTED] M [REDACTED] walked forward from galley to midship aft wait staff station and performed job related duties
- 22:45:54 Server E [REDACTED] M [REDACTED] leaves midship aft wait staff station and walked aft toward galley
- 22:46:03 Assistant Server J [REDACTED] F [REDACTED] used rag to clean floor in front of port aft wait staff station
- 22:46:12 Assistant Server J [REDACTED] F [REDACTED] walked aft toward galley with rag in hand
- 22:46:22 Assistant Server [REDACTED] F [REDACTED] walked forward from galley past port aft wait staff station into dining room
- 22:46:55 Captain S [REDACTED] walked aft past port aft wait staff station from midship
- 22:47:37 Server J [REDACTED] I [REDACTED] walked aft past port aft wait staff station from dining room
- 22:47:53 Restaurant Manager J [REDACTED] K [REDACTED] walked forward from galley to midship wait staff station and used cellular telephone
- 22:48:17 Restaurant Manager J [REDACTED] K [REDACTED] walked forward from midship aft wait staff station to dining room
- 22:48:29 – 22:48:45 Video Skip
- 22:49:56 Server E [REDACTED] M [REDACTED] waled forward from Galley to midship aft wait staff station and performs job related duties
- 22:50:03 Server E [REDACTED] M [REDACTED] walked aft toward galley carrying a silverware tray
- 22:50:31 Restaurant Manager C [REDACTED] G [REDACTED] walked to midship wait staff station from dining room (Observed Fire)
- 22:50:36 Restaurant J [REDACTED] K [REDACTED] walked aft from dining room to midship aft wait station and aft toward galley while he used his cellular telephone
- 22:50:40 Restaurant Manager J [REDACTED] K [REDACTED] walked forward from galley through midship aft wait staff station to dining room
- 22:50:59 – 22:49:59 Video Skip
- 22:51:00 Video Still
- 22:51:01 – 22:55:14 Video Skip
- 22:55:15 Visible Fire

FIRE SCENE EXAMINATION:

FIRE SCENE LOCATION:

99. The fire scene examination of the vessel was conducted at the Charlestown Maintenance Facility, █ Terminal Street Boston, Massachusetts where the vessel was towed and docked after the fire event. The fire event occurred at World Trade Center Pier, 200 Seaport Boulevard Boston, Massachusetts. The fire scene examination began at 200 Seaport Boulevard Boston where the vessel was docked when the fire event occurred.
100. The dock was identified by a kiosk with a sign which clearly read “Boston Harbor citycruises SPIRIT OF BOSTON”. The dock contained an elevated pavilion and a lower level along the water. The dock had a large electrical cable stowed along the wall. It was evident where the vessel was docked. A portion of the dock demonstrated blistered paint and soot deposition on the side in contact with the water. There was no fire damage above the water line except to one (1) stanchion which demonstrated soot deposition. The dock was eliminated as the origin of the fire.



EXTERIOR EXAMINATION:

101. The fire scene examination of the vessel began on the exterior. The examination began at the front/bow side and continued in a clockwise direction around the vessel. The examination commenced from the areas of least damage, top deck, to the areas of greatest damage, below deck.

102. The vessel was docked portside. The vessel was identified by “SPIRIT OF BOSTON” clearly painted on the front/bow of the port side. The four decks visible from the dock where the bridge deck, upper deck, main deck, and lower deck.



103. The fire scene examination began at the forward end of the bridge deck. The bow of the Bridge Deck consisted of the wheelhouse. The wheelhouse was enclosed with glass windows. No windows were broken or covered over in plywood on the bridge deck. No fire damage was visible on the bow of the bridge deck. It should be noted that all windows and door panel glass was heavily tinted. It was not possible to see through the heavy tint into the vessel from the exterior.
104. The forward end of the balcony deck (labeled Skyline Deck onboard) consisted of an open lounge area. Nine (9) dining room windows, and the starboard side dining room exit door, were covered with plywood. No fire damage was visible on the bow of the balcony deck.
105. The forward end of the upper deck (labeled Esplanade Deck onboard) consisted of an open lounge area. The bow of the main deck was enclosed with windows and glass door panels. No windows were broken or covered with plywood on the bow of the main deck. No fire damage was visible on the bow of the upper deck.
106. The forward end of the main deck (labeled Harborview Deck onboard) was completely enclosed with glass windows. One (1) dining room window on the port side was covered with plywood. No fire damage was visible on the bow of the lower deck.



107. The hull area of the bow was intact. No fire damage was visible on the hull of the bow.
108. The starboard side of the bridge deck behind the wheelhouse was an open lounge area. "Boston Harbor citycruises by Hornblower" was clearly painted on the false stack. No fire damage visible on the starboard side of the bridge deck.



109. The starboard side of the balcony deck was completely enclosed with glass windows. Nine (9) dining room windows were covered with plywood. No fire damage visible on the starboard side of the balcony deck.
110. The starboard side of the upper deck was completely enclosed with glass windows. No windows were broken or covered with plywood on the starboard side of the main deck. No fire damage was visible on the starboard side of the upper deck.
111. The starboard side of the main deck was completely enclosed with glass windows, six (6) vents and a cargo door. All nineteen (19) windows were covered with plywood. The aft of the starboard side of the main deck demonstrated significant soot deposition. Numerous scuff marks were visible in the soot deposition. The soot deposition appeared to be the result of engine exhaust and not soot from a fire event. Two exhaust ports were visible in the freeboard below the soot accumulation. No fire damage was visible on the starboard side of the main deck.
112. The hull of the starboard side was intact. No fire damage was visible on the hull of the starboard side.
113. The aft of the bridge deck presented the aft of the wheelhouse and the open lounge. The aft of the wheelhouse consisted of two (2) doors and two (2) windows. Both aft doors and windows were intact. No fire damage was visible on the aft of the wheelhouse or the open lounge. "SPIRIT OF BOSTON BOSTON, MA" was clearly visible on the aft lower deck.



114. The aft balcony deck consisted of an open lounge with a full bar. The two (2) exit doors from the dining room to the aft open lounge were covered with plywood. No fire damage was visible on the aft of the balcony deck.
115. The aft upper deck accessed the main deck dining room via two (2) doors, the balcony deck via stairway, and the main deck via stairway. No fire damage was visible on the aft upper deck.
116. The aft main deck was covered by the aft upper deck and enclosed with a visqueen type curtain. No fire damage was visible on the aft main deck.
117. The aft hull was intact. No fire damage was visible to the aft hull.
118. The fire scene examination aboard began at the gang plank which accessed the port side aft upper deck.
119. The port side of the bridge deck behind the wheelhouse was an open lounge area. "Boston Harbor citycruises by Hornblower" was clearly painted on the false stack. No fire damage was visible on the starboard side of the bridge deck.

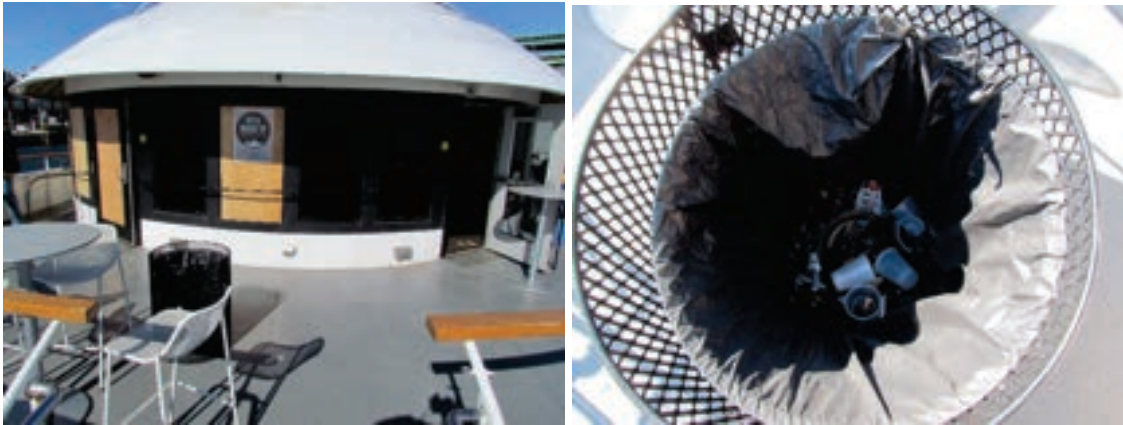
120. The port side of the balcony deck was completely enclosed with glass windows. Nine (9) dining room windows were covered with plywood. No fire damage was visible on the starboard side of the balcony deck.
121. The port side of the upper deck was completely enclosed with glass windows. Five (5) windows covered with plywood on the port side of the main deck. No fire damage was visible on the port side of the upper deck.
122. The port side of the main deck was completely enclosed with glass windows, seven (7) vents and a cargo door. Eighteen (18) windows were covered with plywood. The top of the cargo door panel, as well as the area above the cargo door, demonstrated significant soot deposition. of the starboard side of the main deck demonstrated heavily accumulated soot deposition. The window, sixth (6th) from the stern, demonstrated significant soot deposition on the hull above the window. It was evident the window was ventilated by the fire. The vent, second from aft, demonstrated, significant soot deposition on the louvers.
123. The hull of the port side was intact. No fire damage was visible on the hull of the starboard side.
124. The vessel was boarded from the port side stern via gang plank. The gang plank led onto the stern open portion of the upper deck. No fire damage was visible on the stern portion of the upper deck.

INTERIOR SCENE EXAMINATION

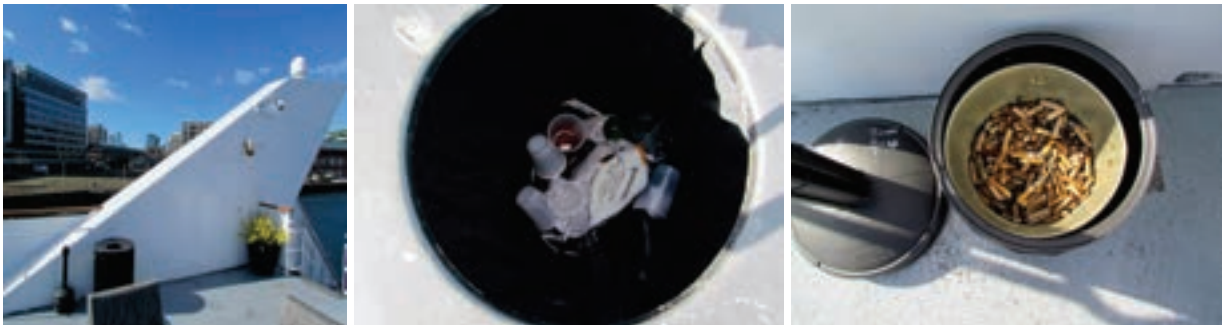
125. The interior fire scene examination began on the bridge deck and was conducted from stem to stern. The wheelhouse was examined. The navigation systems, fire alarm control panel, security alarms and digital video recording (DVR) system, and engine alarms were in the wheelhouse.



126. The remote ventilation dampers controls, engine controls, steering rudder, bow thrusters, and forward bow thruster controls were in the wheelhouse.
127. The vessel was undergoing an upgrade to the point of service (POS) system for food and beverage ordering. Exposed data cables were observed. The POS system was not operational.
128. A crew assignment, duties to be done, and crew checklist board, as well as regulatory inspection, governmental compliance, and emergency procedure documents were in the wheelhouse. No fire damage was visible in the wheelhouse.
129. The exterior forward section of the balcony deck was examined. The deck was furnished with tables and chairs and decorated with potted plants. A trash can located on the deck. The trash can was lined with a plastic trash bag. The trash bag contained several cigarette butts, a glass beverage bottle, an aluminum can, plastic drinking cups, a paper straw, plastic plate a various other rubbish. A stairway led down to the exterior of the forward upper deck.



130. The exterior of the bridge deck aft open lounge was examined. The open lounge was furnished with couches, tables, and chairs. A trash can and enclosed cigarette waste receptacle were located on the port side aft. The trash can was lined with a plastic trash bag. The trash bag contained glass beverage bottles, plastic drink cups paper straw wrappers, napkins, and other rubbish. The cigarette waste receptacle contained approximately one hundred and twenty (120) cigarette butts.



131. Fire station number one (1) was located on the port side forward. The hose and nozzle were stowed.

132. The aft engine stacks were false stacks and used as storage areas. The aft bridge deck was eliminated as an origin of a fire.
133. The forward balcony deck was examined. The deck was separated into a lounge area and mooring rope storage and access area. The lounge area was furnished with tables. An empty trash can was located on the forward balcony deck. A “NO SMOKING” sign was affixed to the stair stringer above the empty trash can. The forward balcony deck was eliminated as an origin of a fire.
134. The aft balcony deck was furnished with couches, tables and chairs, and a foosball table. The aft balcony deck also had a full-service bar with chairs. The full-service bar was not in service at the time of the fire event. A trash can was located on the aft balcony deck. The trash can was lined with a plastic liner. The trash bag contained plastic beverage bottles, plastic drinking cups, a Styrofoam drinking cup, and other rubbish.
135. Fire station number three (3) was located on the aft balcony deck under the stairway leading from the bridge deck to the balcony deck. The fire hose and nozzle were stowed. The aft balcony deck was eliminated as an origin of a fire.
136. The aft upper deck was examined. The gang plank for passenger and crew accessed the aft upper deck. The aft upper deck was not furnished or decorated. Stairways led to the balcony deck above and the main deck below. Fire Station number five (5) was located on the forward bulkhead wall. The fire hose and nozzle were stowed. The aft upper deck was eliminated as an origin for a fire.
137. The exterior aft main deck was examined. A large refrigeration unit was located on the forward bulkhead. Rubber floor mats, a mop bucket, mops, brooms, mooring ropes, blue trash cans, and lifejackets were stored on the aft main deck. A hose, portable generator and portable gasoline container were located on the aft main deck. The portable generator was utilized for the restoration process. Two (2) handwritten signs were taped to the port side wall. The two (2) signs read “Please Do Not Throw Cigarette Butts On The Ground”.
138. An examination under the refrigeration unit revealed numerous cigarette butts, glass and aluminum beverage bottles, and other rubbish. The exterior aft main deck was eliminated as an origin for a fire.



139. The interior of the balcony (Skyline) deck was examined. The forward portion of the balcony deck contained a buffet station with roll top chafing trays, tureens, and several uncovered tables. The center portion of the balcony deck was a dining room furnished with tables and chairs. The center of the room was open to the upper deck below which was accessed by a winding staircase. The aft portion of the balcony deck contained a full-service bar. Soot deposition and dislodged ceiling tiles were visible. Two support columns, one on either side of the open stairway, were distorted.

140. The interior of the upper (Esplanade) deck was examined. The forward portion of the upper deck was set up as a dining room on both sides of a buffet station with roll top chafing trays and tureens. The tables were covered with linen tablecloths. On the tables were small glass votive lamps. Inside the votive lamps were Don brand liquid paraffin wax candle eight (8) hour cartridges. The cartridge was imprinted with "CONTAINS PETROLIUM DISTILLATE KEEP AWAY FROM CHILDREN". The liquid wax candle cartridges were located throughout the upper deck.



141. Midship was a wait staff and coffee station. An examination of the wait staff and coffee station revealed a box of twenty-four (24) Sterno brand six (6) hour Stem Wick chafing fuel containers and an Iwatani brand portable all-purpose lighter. A diagram on the wait staff coffee station sidewall was a diagram for "Buffett Service Table Set Ups". The set up for a standard dinner included one (1) candle.



142. The Lead Server pre-board checklist duties included placing candles on the tables and setting up the gourmet coffee station. The Server closing side-work duties do not include any instruction for removing candles from tables or breaking down the gourmet coffee station.
143. The Lead Server Assistant (SA) pre-board checklist duties included setting up coffee and tea stations. The SA closing side work duties do not include any instruction for removing candles from tables or breaking down the coffee and/or tea stations.
144. A tall plastic yellow trash can labeled "LINEN" was in the wait staff and coffee station.
145. Aft of the wait staff and coffee station was a stairway down to the main deck. The fire doors for the stairway had not been deployed. Both fire door release handles for the Second, Upper Esplanade, Deck were intact. The dampers were utilized or deployed. Fire station number four (4) was located aft of the stairway. The fire hose and nozzle were stowed.
146. Aft of the stairway down to the main deck was the stairway up to the balcony deck and the disc jockey (deejay, DJ) booth and a dining room furnished with tables and chairs. Some of the tables were still covered with tablecloths.
147. Aft of the dining room was a full-service lounge bar. The floor covering on the port side was cracked and the floor was buckled from the port sidewall of the vessel to the center of the full-service lounge bar floor. A plastic milk crate had melted to the floor and adhered to the epoxy/cementitious. When the plastic milk crate was removed the portion adhered to the bottom stuck to it and was separated from the floor. It should be noted the portion of the floor behind the full-service bar did not have a finished floor covering which the dining room and restrooms had.



148. A plaque on the wall of the full-service bar read the date of launching for the Spirit of Boston as March, 1990. The alcohol storage area behind the bar was secured with a metal roll up security gate.

149. Aft of the full-service lounge bar of the upper deck consisted of two hallways, which both ran from the dining room to the exterior aft upper deck, each side exterior side of the vessel. The central portion of the vessel, between the two (2) hallways, contained the men's and women's restroom. The restrooms were examined and were eliminated as an origin for a fire.
150. A stowed fire extinguisher was located inside the port side doorway which separated the exterior aft upper deck from the access hallway to the dining room.
151. Two (2) Square D brand electrical distribution panels were in the port side hallway on the interior starboard sidewall. The panels were labeled "UPPER DECK PANEL # 1" and "UPPER DECK PANEL #2". The panels were examined and did not demonstrate any anomalous electrical activity. The interior of the upper deck was eliminated as an origin for a fire.
152. The interior of the main (Harborview) deck was examined. The forward portion of the main deck was a dining room furnished with tables and chairs. On the port side was a full-service lounge bar. The forward dining room demonstrated moderate soot deposition. Multiple ceiling tiles were dislodged.



153. Aft of the full-service lounge bar were two (2) stairways. The port stairway led up to the upper deck. The starboard side stairway led down to the lower deck. A disc jockey (Deejay DJ) both was located behind the lower deck stairway. Fire station number six (6) was located under the stairway

from the upper deck to the main deck. The fire hose and nozzle were stowed. The galley stores vent fire release and engine room vent dampers releases were intact.

154. Aft of the two (2) stairways was a dining room furnished with tables and chairs. The forward portion of the aft dining room demonstrated significant soot deposition. Tables and chairs were in disarray. The tables were in various stages of being cleaned and bussed. The dining room contained a buffet station with roll top chafing trays and tureens. The aft dining room was carpeted with a tiled dance floor area in the middle. Numerous black trash bags were piled on the floor indicative of clean up efforts that had commenced prior to the fire scene investigation. Temporary portable lighting was also located through out the deck.



155. Numerous ceiling tiles were dislodged and missing. The ceiling tiles were metal supported by a suspended drop ceiling. The interstitial space between the drop ceiling and upper deck was twenty-two inches (22"). The heat, fire, and smoke damage increased towards the port aft portion of the dining room. Various wires and cables were hanging through the open suspended ceiling.
156. Life jackets were stowed along the exterior hull on a shelves above the windows of the dining room. They were concealed from view by a curtain. An examination of the life jackets revealed they were Jim-Bouy brand, model 601, Type 1 personal flotation devices. The label on the life preserver stated the floatation device was constructed of unicellular plastic foam. The life preserver label read "UNITED STATES COAST GUARD APPROVAL NO. 160.055/115/0". According the

jimbouy.com website model 601 life preservers are manufactured with “CJ-16 Foam resists fuel, acid, fungus and is absolutely puncture-proof!”.

157. The heating, ventilation, and air conditioning (HVAC) units were also along the exterior hull above the windows in line with the shelves storing the life preservers. The units were intermittently spaced throughout the main deck.
158. The heat, fire, and smoke damage increased in severity in the dining room on the port side aft. The port side aft was cordoned off with yellow barrier tape. Metal ceiling tiles and a significant portion of the suspended track were dislodged or removed along the port side of the dining room. The amount of fire heat and smoke damage increased along the port side of the aft dining room. The exposed metal portion of the underside of the upper deck demonstrated significant oxidation and deformation.



159. The dining room port aft side partition wall separated the port aft side wait staff station along the port side vessel hull. The upper portion of the wall covering on the aft dining room port side partition wall was absent. The wall was constructed of standard metal vertical framing studs with metal paneling as the wall covering on both sides. The exposed back side of the metal paneling on the port aft side wait staff station demonstrated significant oxidation which increased in severity towards the port side of the hull of the vessel. Electrical conductors and the back side of outlet boxes were exposed. They were examined and did not demonstrate any anomalous electrical activity. It was evident the fire exposed the aft dining room from the port aft wait staff station.



160. The partition wall in the center of the dining room aft separated the dining room and the midship aft wait staff station and the handicapped restroom. The center dining room aft partition wall depicted the Boston city skyline and various city landmarks. Most ceiling tiles above the central staff wait station were absent.
161. The aft partition wall behind the midship aft wait staff station contained the handicapped restroom door and was the adjoining wall with the vessel hospitality office. The wall covering was a noncombustible film adhered to metal paneling. The noncombustible film had melted and lost adhesion to the metal paneling. An examination of the handicapped restroom did not reveal an origin for a fire.
162. The starboard side of the midship aft wait staff station consisted of permanent metal shelving with computer equipment, a microwave, various stored items, and hospitality table setting items. Heat, fire, and smoke damage increased toward the port side of the vessel.



163. The port side of the midship aft wait staff station consisted of a portable metal rack shelving unit. The portable metal rack shelving contained cardboard boxes on the top shelf and stacked silverware storage trays on the next two (2) lower shelves. The tops of the cardboard boxes had been consumed. The stacked silverware trays were all melted on the port side. The shelves of the portable metal rack were all leaning toward the port side. The plastic spacers and retaining rings for the adjustable shelves had melted on the port side.
164. The wall covering was a noncombustible film adhered to the metal paneling. It had cracked and split, bubbled and charred. The damage to the wall covering noncombustible film increased in severity from the midpoint of the wall port side to the entire upper portion of the partition wall running port to starboard. It was evident the fire exposed the midship aft wait staff station from the port aft wait staff station.
165. Two (2) hallways, port and starboard, ran along both sides of the vessel on either side of the center partition wall from the dining room to the aft exterior main deck. The starboard side hallway ran along the exterior hull of the vessel. The port side hallway ran along the interior of the vessel through the galley stores/bakery area and the galley.
166. An examination of the starboard side hallway revealed the vessel hospitality office. A safe in the office was examined and it was determined it was not tampered and no contents were missing. The computer and printer were still present.

167. Behind the vessel hospitality office was the door to the engine room. It was closed and secured with a push button cypher lock. An intact fire extinguisher was on the floor by the engine room door.

168. Two Square D brand electrical distribution panels were in a closet aft of the engine room access door. The closet was the underside of the stairway from the main deck to the upper deck. The two (2) electrical distribution panels. Were labeled “MAIN DECK PANEL # 1” and “MAIN DECK PANEL #2.” MAIN DECK PANEL # 1 presented the following breakers in the tripped position:

- 1 labeled “outlets (2x) port aft (including aft w/s on outer wall)”
- 6 labeled “outlet port wall midship”
- 7 labeled “Port dance floor trough (lights + speakers)”
- 15 labeled “unknown -> all have ‘push to test’”
- 18 labeled “outlet aft w/s port (sinks)”
- 31 labeled “coffee maker aft w/s port (40 amps)”
- 34 labeled “outlet (small) by galley stores stairs”
-

Breaker 36 labeled “outlet (big) by galley stores stairs” was in the off position. All other breakers were in the on position.

169. MAIN DECK PANEL #2 presented the following tripped breakers:

- 4 labeled “manager/hand head lights”
- 5 labeled “all sconces”
-

All other breakers were in the on position.



170. A Powervar electrical power conditioner and various other electrical components were in the closet. An examination of all electrical components in the closet and electrical distribution panels did not reveal any anomalous electrical activity. The electrical components in the closet were eliminated as a cause for a fire.

171. The starboard side hallway leading to the aft exterior main deck demonstrated moderate heat, fire, and smoke damage. The cargo door along the corridor had been closed during the fire. The

remaining windowpane glass demonstrated significant soot deposition. An intact fire extinguisher was secured to the wall by the starboard exit door.

172. The port side exit door from the exterior main deck lead into the galley. The galley demonstrated moderate heat and smoke damage. The galley was divided in half. The food preparation and cooking portion was located on the port side with the cleaning station towards the center of the vessel. A large cooler separated the two (2) areas. The galley was outfitted with permanently mounted metal shelving, sinks, and cooking and cooling appliances. A tall yellow Rubbermaid brand trash can labeled "LINEN ONLY" was in the port aftion of the galley. An intact fire extinguisher was mounted to the wall on a port side wall below the intact manual cooking hood fire extinguisher pull station. The soot deposition and heat damage increased forward toward the dining room.

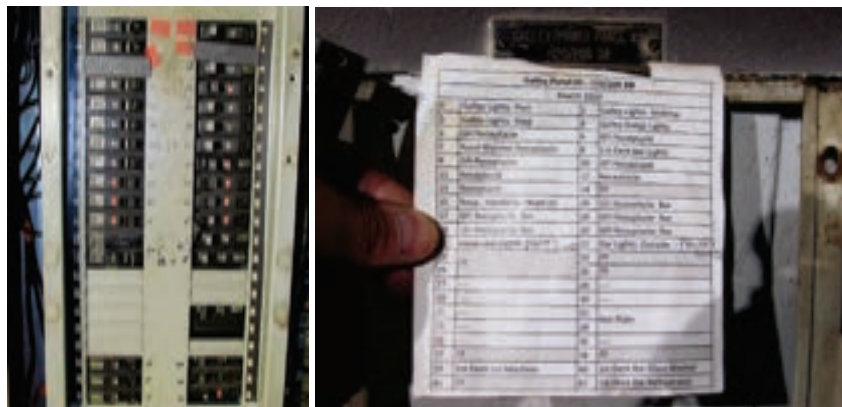
173. The Square D brand main deck electrical distribution panel Galley Power Panel # 1 did not demonstrate any tripped breakers.

174. The Square D brand main deck electrical distribution panel Galley Power Panel # 2 did not demonstrate any tripped breakers.

175. The Square D brand main deck electrical distribution panel Galley Power Panel # 3 demonstrated the following breakers in the tripped position:

- 8 labeled "1st Deck Bar Lights"
- 16 labeled "GFI Receptacle- Bar"
- 18 labeled "GFI Receptacle- Bar"
- 19 labeled "GFI Receptacle- Bar"
- 20 labeled "GFI Receptacle- Bar"
- 21 labeled "Pantry Lights"
- 22 labeled "Bar Lights Outside – Pantry Lights"
- 42 labeled "1st Deck Bar Refrigerator"

All other breakers were in the on position. An examination of all electrical components did not reveal any anomalous electrical activity. The electrical components in the galley electrical distribution panels were eliminated as a cause for a fire.



176. The port side hallway demonstrated significant heat, fire, and smoke damage. The damage increased in severity moving forward towards the dining room. The ceiling consisted of a suspended track with gypsum tiles. Most of the gypsum tiles were dislodged or absent and the suspended track was significantly damaged. Recessed lighting fixtures were in the ceiling as well as various wires and cables.
177. Fire station number seven (7) was located along the starboard wall. The fire hose and nozzle were stowed. A fire blanket was on the floor next to fire station number seven (7). An intact fire alarm pull station was above fire station number seven (7).
178. Forward of the galley was the pantry. The pantry demonstrated significant heat, fire, and smoke damage. The ceiling consisted of a suspended track with gypsum drywall tiles. Most of the gypsum drywall tiles were dislodged or absent and the suspended track was significantly damaged. Recessed lighting fixtures were in the ceiling as well as various wires and cables.



179. Along the aft wall were several refrigeration appliances. The port side wall contained two (2) windows, which were boarded over, but was unobstructed by any permanent appliances or furnishings. Several metal chairs were stored on the inside of the port hull. The forward wall consisted of an enclosed cabinet audio system for the DJ, labeled "Private Party", permanently mounted shelves affixed to the upper portion on the forward partition wall which adjoined the port aft side wait staff station, and a metal table with a lower shelf. A portable floor mixer, a full height

tray storage rolling rack, and a warming oven. The center of the room had a portable table and several chairs around it.

180. The heat, fire, and smoke damage increased in severity forward toward the port aft wait staff station and was most severe in the upper portion of the pantry. The most visible fire damage was port side forward in the pantry.
181. The contents below the level of the audio system for the DJ were relatively undamaged which was the level at which the lower permanently mounted metal shelf has collapsed too. The stored contents damaged by heat and smoke were affected by drop down and radiant heat from contact with the metal forward partition wall, which adjoined the port aft side wait staff station, which occurred later during the fire event.
182. The permanently mounted shelves on the forward wall, which adjoined the port aft side wait staff station had both collapsed. The upper shelf demonstrated a significant oxidation pattern on the port side which diminished laterally starboard. The damage to soffit along the port wall decreased in severity from the forward port corner of the galley stores. The metal soffit covering had been consumed in the forward port side corner. The metal wall covering of the forward partition wall, which adjoined the port aft side wait staff station, had been consumed. This was indicative of a long duration fire event with significant fire impingement.
183. The underside of the upper deck demonstrated significant oxidation with the most severity in the forward port side corner.



184. The stored contents and shelving on the forward galley stores wall, which adjoined the port aft side wait staff station were removed to examine the wall covering. The partition wall demonstrated a fire “V” pattern which originated at floor level and extended upwards and outwards. There were several penetrations in the metal wall covering near floor level. The penetrations increased in number and size in the upper portion of wall. The metal panel wall covering was consumed along the port side. Stored combustibles in contact with the metal wall covering had melted and adhered to the metal wall covering due to radiant heat transfer through the metal wall.
185. The appliances, electrical wiring, and fixtures were examined. The pantry was eliminated as an origin for a fire. It was evident the fire exposed the pantry from the port aft wait staff station.



186. The restaurant storage below deck was examined. Restaurant storage was access from the midship stairway located behind fire station number six (6) on the main deck. There was no evidence of heat, fire, or smoke damage. At the bottom of the stairway was a rack which contained a “Entertainment Cruises Training Guide” and a “Galley Management Logbook Spirit of Boston”. The restaurant storage contained numerous coolers and freezers, open rack canned storage, and caged secured storage.
187. The stored combustibles, to include napkins, plates, and consumables and liquor, were secured in cages on the port and starboard sides of the vessel.

188. Inside the starboard side secure storage, accessed from between two refrigeration units, were four (4) unopened and one (1) opened box of Don brand Liquid Wax Candles, eight (8) hour cartridges. The box contained the same liquid wax candles in the lamps on the decks above. An examination of the box revealed the following printed on the box:

INSTRUCTIONS FOR PROPER USE OF LIQUID CANDLE FUEL CELLS:

1. Do not tamper with wick – it may cause a fire hazard and will void all claims.
2. Burn in well-ventilated areas away from drafts.
3. Remove plastic cap from Liquid Candle fuel cell.
4. Place Liquid Candle fuel cell in lamp.
5. Light unit by applying lit match or butane lighter to wick at top of Liquid Candle fuel cell.
6. The Liquid Candle fuel cell is not to be refilled.
7. Extinguish by blowing out flame.

189. The warning label on the box read, in part: DANGER: Store locked up. Dispose of contents/container in accordance with local/regional/national/international regulations. DANGER: COMBUSTIBLE: Contains petroleum distillates. Combustible if absorbed on paper or fabric. Do not store or use near ignitable materials. Do not store near heat or open flame. Use only in well-ventilated area. Keep tightly capped when not in use.



190. The restaurant storage area was eliminated as an origin for a fire.

191. The engine room was examined. On the wall above the access ladder was a dry erase board inspection checklist for engine, generators, and maintenance. Listed on the board was on the twentieth (20th) of every month was “safety round check list” and run both fire pumps”.

192. The four (4) engines were intact and did not demonstrate and abnormalities. The port side of the engine room demonstrated moderate to significant heat and smoke damage.

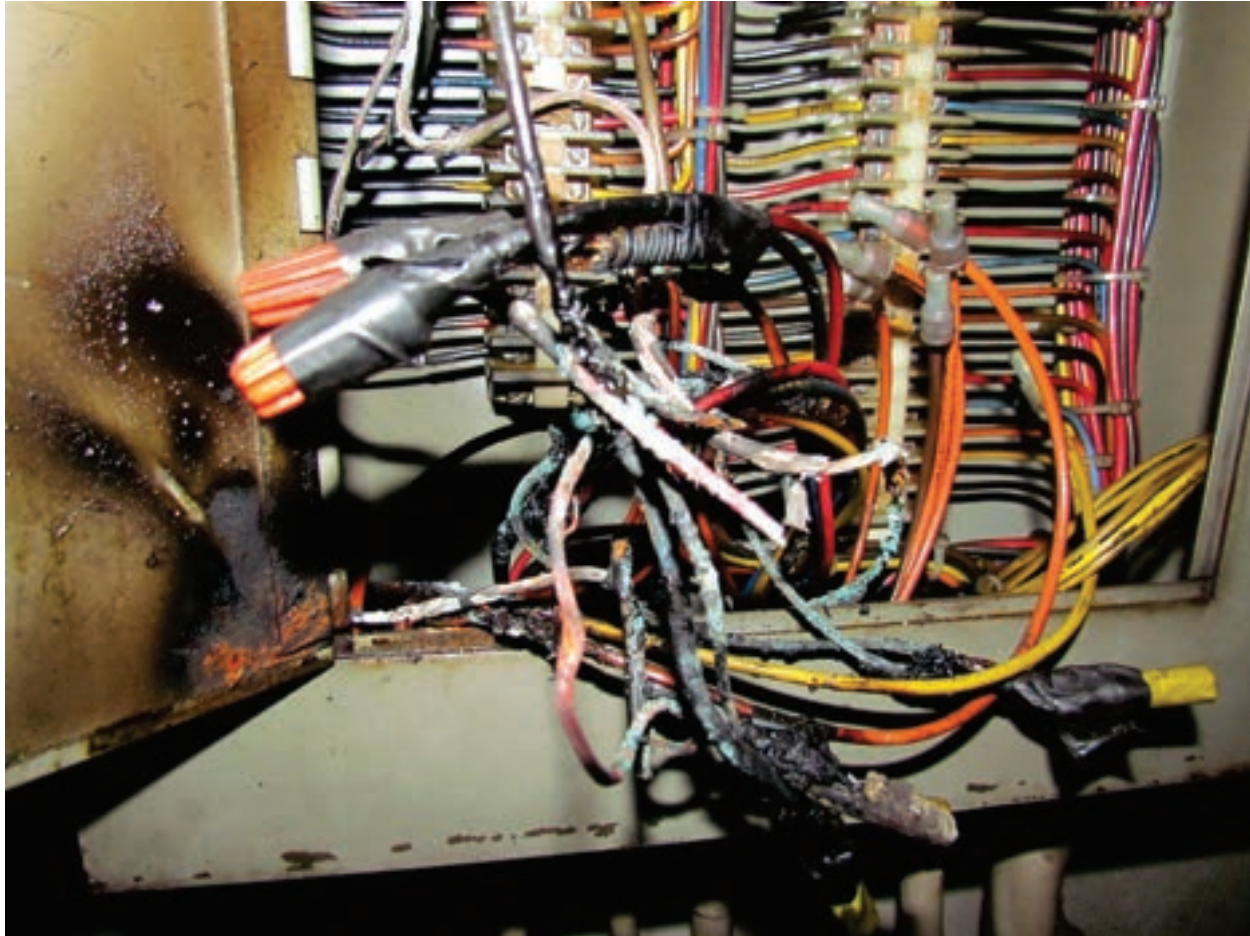


193. The Square D brand main deck electrical distribution panel Galley Power Panel # 2 did not demonstrate any tripped breakers. Breaker 2 labeled “Air Dryer/ Lazarette Lights”, breaker 4 labeled “Recp.- Engine Room”, and breaker 11 labeled “Engine Rm Lts- Mid & Stbd” were in the off position. All other breakers were in the on position.
194. The “FIRE PUMP” compartment was examined. The “ENGINE ROOM ALARM PANEL JUNCTION BOX” (ERAJ Box) was on the aft wall. Numerous conductors entered the top of the ERAJ Box from forward and aft. Most of conductors were encased in rigid conduit. None of the conduits or conductors were labeled. Two (2) conductors, one (1) forward originating and one (1) aft originating conductor entered the ERAJ Box on the starboard side through a metal cable protector grommet. A single conductor also entered the ERAJ Box on the starboard side through a metal cable protector grommet.
195. The insulation on the three (3) specified conductors was melted, charred, discolored and deformed. The area adjacent to and above the described conductors demonstrated soot deposition to the exposed conductors and ridged conduit. There was no evidence of an external heat source which exposed the damaged conductors. The thermal damage to the conductors was due to internal heating.



196. The conductors which entered the bottom of the ERAJ Box did not demonstrate any anomalous electrical damage.
197. The exterior of the ERAJ Box was examined. The ERAJ Box did present a brand name but displayed a sticker on the interior which read in part “Type 1”, “CUTOUT BOX”, ISSUE NO. F99541” and was listed by Underwriters Laboratories. The lower left corner of the ERA JBox panel cover door at the bottom of the hinges demonstrated arc pattern and minor soot deposition.
198. The interior of the ERAJ Box was examined. The interior of the ERAJ Box demonstrated anomalous electrical damage. The corresponding interior side of the ERAJ Box panel cover and door demonstrated significant soot deposition, blistered paint, and varying amounts of oxidation to include rust. It appeared from the pattern of the soot deposition that multiple conductors were in contact with the ERAJ Box panel door during the anomalous electrical activity.
199. A partial manufacturers identification label, affixed to the interior side of the ERAJ Box panel door read, in part, “UNDERWRITERS LABORATORIES” “Type 1”, and “CUTOUT BOX”. None of the circuits were labeled and there was no circuit diagram attached to or located in the ERAJ Box. An examination of the conductors in the ERAJ Box revealed the conductor connected to the bus bars did not demonstrate anomalous electrical activity.
200. The three (3) conductors which demonstrated anomalous electrical activity were not connected to the bus bars. The six (6) wires inside the ERAJ Box appeared to terminate in five (5) splices. The

splices appeared to be connected in wire nuts and covered with common black polyvinylchloride (PVC) electrical tape.



201. Hornblower City Cruises conducted an examination and analysis of the damaged conductors. In summary the conclusion by Hornblower City Cruises determined the wires labeled 1,2,4 and 5, by Hornblower City Cruises in the diagram below, supplied power to the windshield wiper system located in the pilot house from the port main engine starting batteries in the engine room. The connection to the battery did not have overcurrent circuit protection to protect the wires from short circuits. The wire was not routed through the vicinity of the fire origin area as it made its way to the pilot house. Hornblower City Cruises concluded that Wire 4, located in the main deck exterior superstructure bulkhead, was damaged when the fire spread which caused the short which burnt the wires in the engine room. Therefore, the burnt wires in the engine room were a result of the fire not the cause. Please refer to Hornblower Cruises and Events Spirit of Boston Report ON 954835 (Attachment 2).

202. It was evident by the presentation of the conductors, conductor insulation, PVC tape, and distribution panel box damage, the specified conductors were exposed to conductive heating, through the hull from the port aft wait station, were overheated and produced and overload on the specified conductors. The PVC tape melted which caused the conductors to contact the distribution panel box. The overcurrent resulted in sleeving of the conductor insulation and the exposed conductors demonstrated associated oxidation.



Photograph Courtesy of
Hornblower City Cruises
Report ON 954835

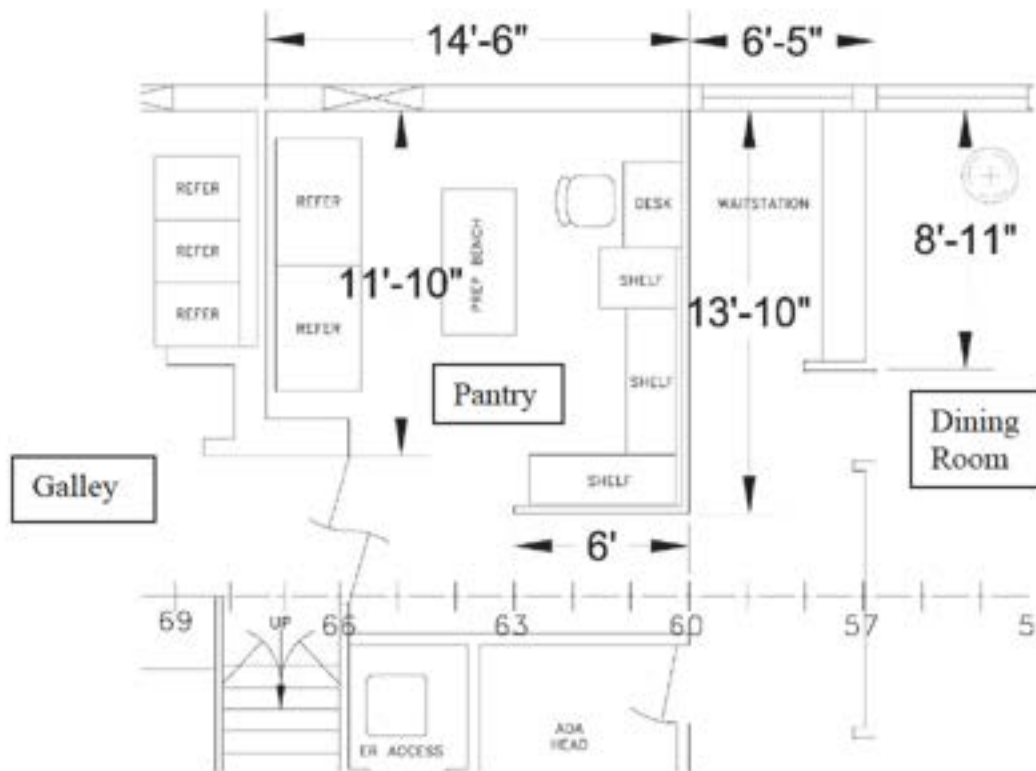
203. The port side engine room ceiling finish was perforated metal panels. The perforated metal panels on the port side demonstrated significant soot deposition and demonstrated deformation. Above the perforated metal ceiling panels the metal underside of the main deck exhibited significant oxidation. Above the perforated metal ceiling panels plastic material had melted and dripped to the engine room deck below before solidifying. It was evident from the configuration of the vessel the oxidation was below the area of the port aft side wait staff station. No fuel lines, electrical conductors, or heating appliances were in the area below the port aft side wait staff station. The damage was attributed to conductive heat transfer through the metal deck.

204. There was no evidence of penetration through the deck. The engine room was eliminated as an origin for a fire.



205. The forward hold was examined. The forward hold contained the fuel tanks and wait staff storage lockers. The forward hold was eliminated as an origin for a fire.
206. The port aft side wait staff station was examined. The most severe fire damage on the vessel was the port aft side wait staff station area. Based upon the fire patterns, fire dynamics, witness statements, and video review it was determined the fire origin area was the port aft side wait staff station.
207. All fire patterns, on wall and ceiling surfaces, stored materials, furnishings, and appliances, and structural components, which surrounded the port aft side wait station, indicated the fire emanated from the port aft side wait staff station. The fire growth and spread demonstrated by the configuration of the vessel construction, ventilation, and fuel load indicated the fire originated in the port aft side wait staff station. Witness statements indicated the fire originated in the port aft side wait staff station. No witness statement indicated a fire in another location on the interior or exterior of the vessel. All video recordings, interior and exterior, placed the origin of the fire in the port aft side wait staff station.
208. Affixed to the starboard side partition wall of the port aft side wait station was a sign which read, in part, “WARNING NOTICE” “EVIDENCE” “DO NOT enter this area without permission” and

dated March 28, 2023. The notice was placed by Thermalogix Fire Investigation Services LLC, Investigator S [REDACTED] F [REDACTED].



209. The port aft wait staff station starboard side forward partition wall, which separated the port aft wait staff station from the port side hallway, demonstrated a directional fire pattern. The upper portion of the wall covering was absent. The wall covering finish was Wilsonart® fire-rated laminate (laminate) applied over metal paneling. The laminate on the lower portion of the starboard side partition wall was consumed directionally from the deck at the door opening upwards forward. The remaining portion of the adhesive non-combustible wall was on the forward portion of the starboard side partition wall. The directional pattern on the lower portion of the metal wall panel originated from the deck at the door opening upwards forward which corresponded to the pattern demonstrated by the noncombustible adhesive wall covering. The port aft side wait staff station demonstrated significant heat, fire, and smoke damage.
210. A wheeled plastic cart was stored along the aft wall of the port aft side wait staff station. The wheeled plastic cart was melted, and the top portion partially consumed, directionally from port to starboard. The most significant damage was to the lower, port side, of the wheeled plastic cart and diminished towards the upper, starboard side, of the wheeled plastic cart.
211. The laminate over the metal wall paneling was directionally consumed from port to starboard. The portion of the wall covering which remained was the lower starboard side by the port hallway. An oxidation pattern was distinguishable on the aft wall of the port aft side wait staff station metal panel wall covering.

212. A metal wire shelving unit was on top of the wheeled plastic cart. It was evident the metal wire shelving unit was not in its original pre fire event location. The shelves and support posts were not aligned. The oxidation patterns on the metal wire shelving unit did not correspond to the directional damage to the wheeled plastic cart or the oxidation pattern on the aft wall of the port aft side wait station. It appeared the metal wire shelving unit was placed on top of the wheeled plastic cart after the fire event was extinguished.



213. The directionally damaged wheeled plastic cart and corresponding oxidation pattern on the aft wall of the port side station metal wall paneling, in combination, comprised the starboard portion of fire “V” pattern on the aft wall of the port aft side wait staff station. The fire “V” pattern originated at the deck in the port aft side wait staff station and rose upward and outward. The wheeled plastic cart carried several silverware storage trays.

214. The portion of the fire "V" pattern on the wheeled plastic cart and the oxidation pattern on the aft wall of the port aft side wait staff station metal paneling wall covering, in combination, corresponded to the directional fire pattern on the entryway starboard forward wall of the port aft side wait staff station. The corresponding patterns demonstrated the fire originated at the deck in the port aft side wait staff station and emanated outward.



215. The port side aft wait staff station partition wall extended past the entryway starboard forward wall which separated the port side hallway from the port aft side wait staff station. The port side aft wait staff station partition wall was constructed of vertical metal posts and metal horizontal slats with metal paneling covered with a as the wall covering. The metal panel wall covering was consumed which resulted in a fire "V" pattern. The fire "V" pattern originated at the deck and extended upward and outward from the center of the partition wall. Oxidation on the vertical metal posts and slats demonstrated a fire "V" pattern which originated at the deck and extended upward and outward from the center of the partition wall.
216. An examination of the interstitial space of the port side aft wait staff station wall revealed electrical conductors and three (3) receptacles. Two (2) of the receptacles, a duplex and triplex, faced the galley stores aft, and a duplex faced port aft side wait staff station. The electrical conductors, related connections, work boxes, receptacles, and attachment locations were examined. Arc melting was observed on a branch circuit stranded conductor that ran along the interior of the aft partition wall which separated the galley food preparation area. The presence of the arc melting on

the branch circuit conductor is consistent with the circuit being energized at the time the artifact was created. No other anomalous electrical activity was present.



217. The port side interior wall contained one (1) window, which was ventilated by the fire. The remaining interior and exterior windowpane glass demonstrated significant soot deposition. A metal storage shelf was below the window. The metal shelf was significantly deformed. An examination of the metal storage shelf revealed a corrugated cardboard box which contained chafing fuel containers, windowpane glass, and fire debris. The chafing fuel containers were consistent with Sterno brand, stem wick, six (6) hour chafing fuel containers. An examination of the Sterno brand chafing fuel containers and corrugated cardboard storage box revealed the upper portion of the corrugated cardboard storage box was consumed. The Sterno brand chafing fuel containers did not demonstrate any evidence of failure. It was evident the corrugated cardboard storage box of Sterno brand chafing fuel containers was exposed from the fire event.
218. Below the shelf was an interstitial space the sidewall was constructed of metal columns and slats with metal paneling as the wall covering. The columns and slats were significantly deformed. The sidewall was insulated with fiberglass batts. The metal panel wall covering demonstrated a fire "V" pattern due to consumption of the metal panel wall covering. The fire "V" pattern originated at the deck and extended upward and outward from the aft forward.



219. An examination of the interstitial space revealed electrical conductors and a quadruple outlet receptacle. The electrical conductors, related connections, work boxes, receptacles, and attachment locations were examined and did not demonstrate any anomalous electrical activity.
220. Above the port side hull window was a heating, ventilation, and air conditioning (HVAC) unit. The HVAC demonstrated significant oxidation. The electrical conductor which supplied power to the HVAC unit was intact. An examination of the HVAC unit did not reveal any anomalous activity. The electrical conductors supplying power to the HVAC unit were intact. Electrical conductors were examined and did not demonstrate any anomalous electrical activity.
221. Along the forward partition wall of the port aft side wait staff station were three (3) sinks, a counter, coffee station, a metal paper towel dispenser, and an upper cabinet. A metal wire coffee filter holder, coffee urn(s), warmer, pitchers, and fire debris were on the countertop. The metal

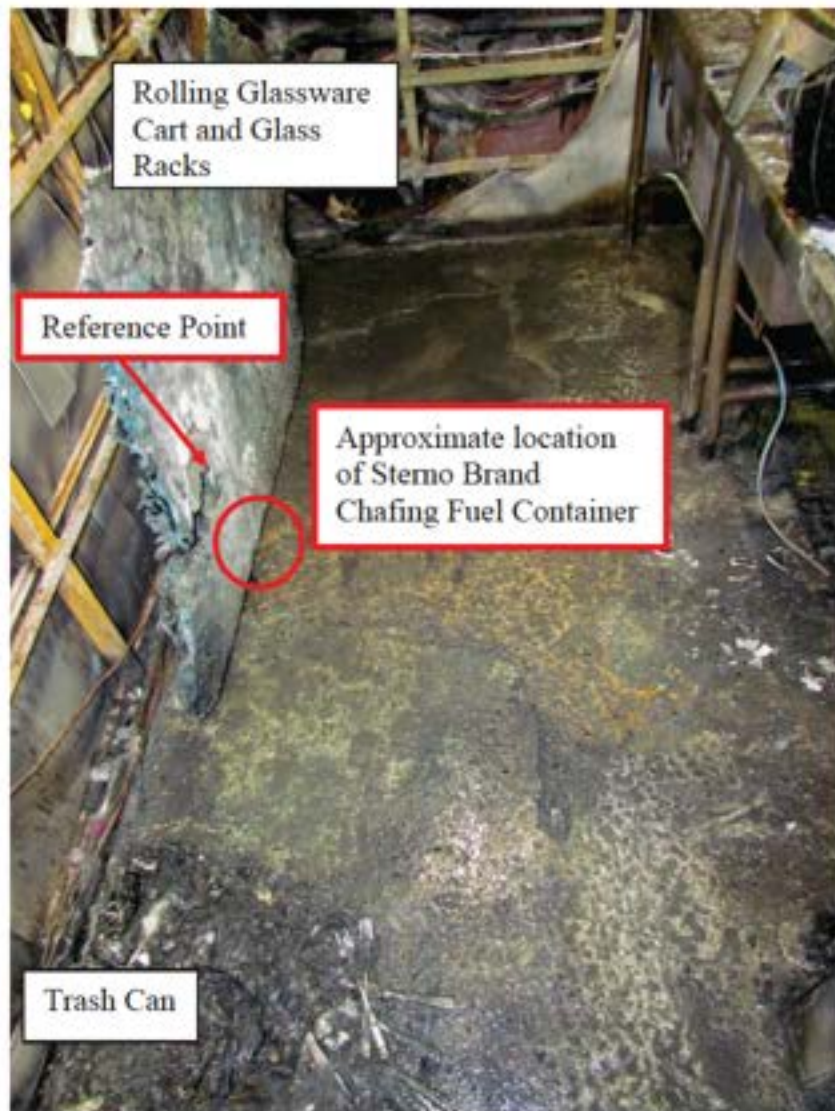
paper towel dispenser was affixed to the wall above the port sink. It demonstrated significant oxidation from exposure to the fire event. The exposed paper towels at the bottom of the dispenser were partially consumed. The paper towels inside the metal dispenser were unaffected. The coffee station was examined and did not demonstrate any failure and was exposed to the fire event.



222. It was determined the metal wire coffee filter holder had been located on a middle shelf of the metal wire storage rack and the warmer had been stored one middle shelf below that in the port side aft wait staff station. The exposed edges of the coffee filters in the metal wire holder were partially consumed. There were no other combustible materials on the forward wall on or above the countertop.
223. A cellular telephone was on an upper shelf. The cellular telephone was in the location as described by H [REDACTED]. The cellular telephone was not connected to a portable charging source, and was not connected to a vessel electrical receptacle, as described by H [REDACTED]. No thermally thin materials were located on the upper shelf. The cellular telephone demonstrated significant thermal damage. The cellular telephone demonstrated minimal mechanical damage to the thermally damaged components.
224. The battery housing demonstrated expected thermal damage from exposure from a fire. The battery did not demonstrate damage expected from an internal failure which may have resulted in the ejection of flaming electrolyte. The battery did not present visually apparent mass loss that would accompany ejection of flaming materials.



225. The suspended ceiling was constructed of metal track with metal panels. The interstitial space between the suspended ceiling and upper deck was twenty-two inches (22"). The interstitial space contained recessed lighting fixtures, suspended electrical conductors, soft drink beverage supply tubing, and audio/visual (AV) wiring for the DJ venue. Foil faced insulation batts were on the underside of the deck around the edges of the hull.
226. An examination of the ceiling space, conductors, light fixtures, and related components did not reveal anomalous electrical activity or any cause for a fire event.
227. The upper deck above was constructed of steel supported by hollow metal columns and horizontal metal deck beams.
228. The floor of the port side aft wait staff station was examined, delayered, and reconstructed. The forward portion of the floor revealed a wheeled flat plastic cart with a coffee cup storage rack stacked on top, a melted plastic cleaning product squeeze bottle, a melted yellow plastic unidentified object, and melted PVC plumbing piping. The wheeled flat plastic cart with the coffee cup storage rack was removed and examined and did not reveal any causes for a fire.
229. The fire debris in the port aft wait staff station consisted of several inches of solidified plastic. The examination of the solidified plastic beyond the melted wheeled plastic cart, revealed a melted plastic trash can, a wheeled flat plastic cart with several drink glass racks stacked on top, and the metal wire rack storage unit which was repositioned along the port wall. Identifiable items visible on the top of the solidified plastic were silverware, metal serving pitchers, and glassware. The solidified plastic had adhered to the cementitious floor finish which was applied over the steel decking. The solidified plastic debris was removed, along with the adhered cementitious floor finish.



230. The melted trash can was removed from the floor and examined. The trash can was identified as a Rubbermaid, model Slim Jim, black, twenty-three (23) gallon waste container. The solidified plastic debris contained silverware from the melted wheeled plastic cart which was next to it. The top of the melted debris revealed a black plastic trash can liner. The contents were mechanically removed. Within the trash can liner were plastic drink cups, paper cleaning wipes, paper single use sugar packet wrappers, a metal button, partial paper drinking straw, paper disposable tea bag wrapper, and miscellaneous other paper product rubbish.
231. Comparison photographs of plastic trash can in port aft wait staff station can to exemplar located on vessel.



232. Remains of melted plastic trash can removed from port aft wait staff station for contents examination.



233. Mechanical removal of contents from remains of melted plastic trash can from port aft wait staff station.



234. Sorted contents from remains of melted plastic trash can from port aft wait staff station.



235. The cementitious floor finish was mechanically removed by hand to examine the underside of the solidified plastic debris. The examination revealed a dish and glass rack dolly, blue and tan drink glass storage racks, a red silverware basket, and cleaning product squeeze spray bottles. The examination of the cementitious debris did not reveal any evidence of a fire cause.



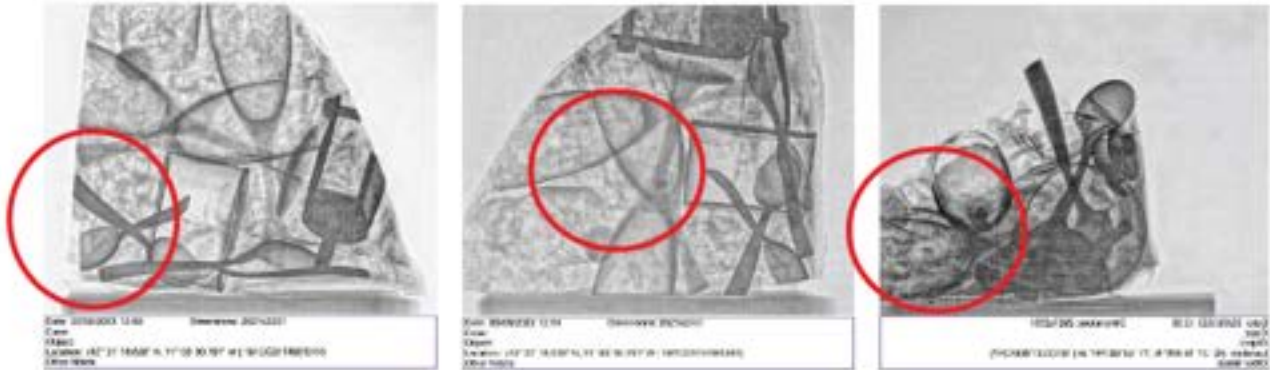
236. Comparison photograph of glassware racks, silverware rack, and spray bottle from solidified plastic fire debris, removed from deck of port aft wait staff station, to exemplars located on vessel.



237. The solidified plastic debris was subjected to x-ray examination. The x-rays identified a chafing fuel container located in the area under the dish and glass rack dolly which was stored between the Rubbermaid Slim Jim waste container and the metal wire rack storage shelving unit. The container was located on its side. A physical examination determined it was a Sterno brand six (6) hour Stem Wick chafing fuel container. The portion of the container which was flush with the floor revealed the paper label was unburned.



238. Administrative X-Rays of solidified plastic fire debris removed from deck of port aft wait staff station depicting the Sterno brand chafing fuel container.



239. Exposed portion of Sterno Brand chafing fuel container after administrative X-Rays.



240. The Sterno brand chafing fuel container was mechanically removed from the solidified plastic debris for examination (left photograph). The Sterno brand chafing fuel container demonstrated a distinct pattern to one (1) half of the container. One (1) half of the container was significantly more discolored than the other half. Right hand photo is exemplar Sterno brand chafing fuel container, placed on its side, after FRL test fire.



FIRE PROGRESSION:

241. The fire originated on the Main, Harborview Deck, in the port aft wait station at floor level. The fire consumed the plastic beverage glass storage racks and progressed from the port aft wait station, ignited the stored portable flotation devices (PFD's) and spread heat, smoke, and fire throughout the Main, Harborview Deck. Please refer to ATF Senior Fire Research Engineer (FRE) B. G. [REDACTED]'s Report [REDACTED] (Attachment [REDACTED]).
242. In summary SFRE G. [REDACTED]'s report concluded:
- A. Heat flux was quantified above Sterno can flames. Testing showed that:
 - 1. Sterno can flames are highly sensitive to local air movement.
 - 2. One minute maximum average heat fluxes ranged from 14.6 kW/m² to 55.8 kW/m² depending upon measurement height and Sterno can orientation.
 - 3. Measured heat fluxes were much higher when the can was in an upright position than resting on its side.
 - 4. Heat fluxes decreased in magnitude with increasing distance between the flame and heat flux transducer.
 - B. Multiple attempts at ignition were made by holding the flame from a stick lighter in contact with spilled chafing fuel. No ignition of the chafing fuel occurred.
 - C. A Sterno can with all of its fuel poured out will burn for about 10 minutes.
 - D. 45 tests were conducted in which a lit Sterno can was dropped from a height of 102 cm (40 in). Sterno cans remained lit in 71% of the cases after falling onto the floor.
 - E. A plastic dolly was ignited by an upright Sterno can in two separate tests 30 seconds and 54 seconds after being exposed to flame. Sterno cans on their side ignited plastic approximately 2 minutes to 18 minutes after exposure. (The times for Sterno cans on their side were based on subtracting 30 seconds from the first observed dripping, per observations from Phase 2.) Ignition results are consistent with measured heat fluxes.
 - F. "Light/ Visible" smoke emanating from the test structure was observed from 7:58 (mm:ss) to 22:15 (mm:ss) post ignition.
 - G. "Heavy" smoke was reported from 9:23 (mm:ss) to 23:26 (mm:ss) post ignition. Approximately one minute after "Heavy" smoke was observed on video the smoke began to turn dark in color and intermittent flames could be seen between the vertical gap in the pony wall and the drop ceiling.
 - H. Nine individual tests were conducted, in three different experiments, by placing a lit Sterno can into the contents of a Rubbermaid Slim Jim 23 gallon trash can. Fire spread from the interior to the exterior of the trashcan in two of the tests at approximately 6:36 (mm:ss) and 47:40 (mm:ss) post ignition.

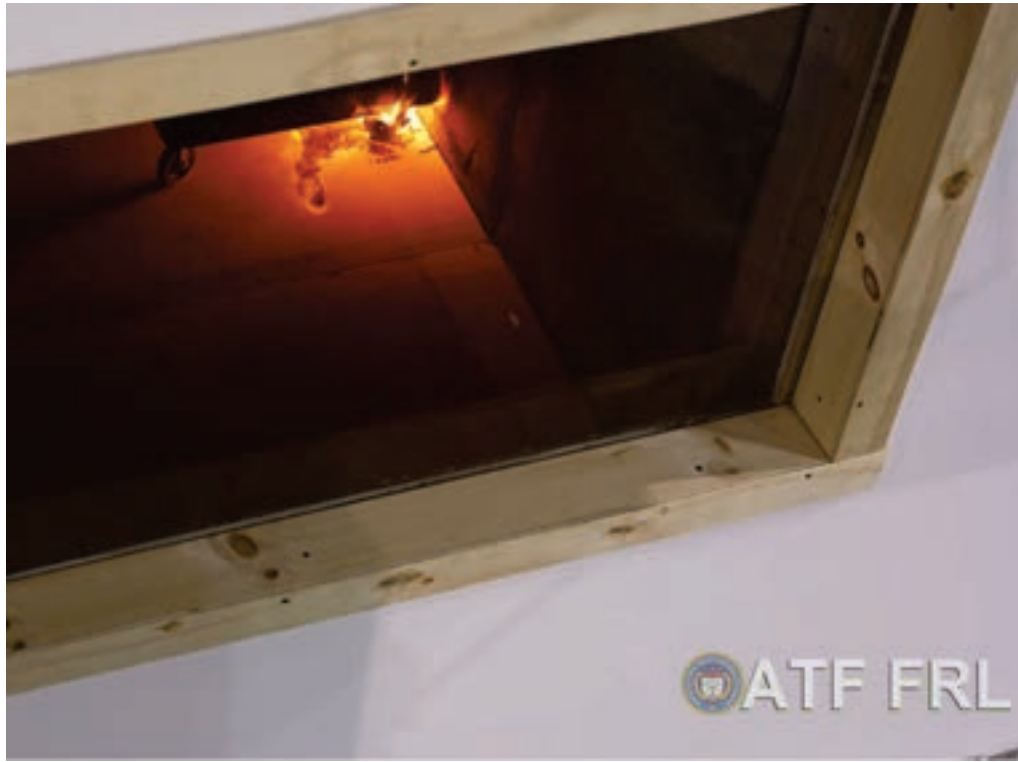
243. ATF Fire Research Laboratory (FRL) fire research testing demonstrated a fire consistent with the observed fire event. Comparison of witness video screen capture (left) with FRL research test fire screen capture (right). Note the consistent flame vectoring and liquified plastic pool to the left of the flames.



244. Screen capture of FRL of “Master” video of full scale testing.



245. Screen capture of “snake” of fire, determined to be flaming dripping plastic from rolling cart and/or glassware racks. FRL testing video is consistent with witness observations and descriptions.

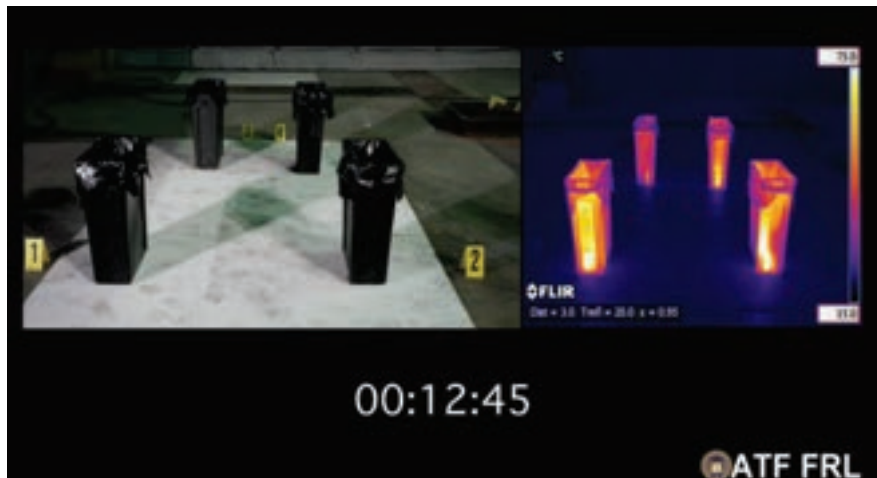


246. Sequential photographs of exemplar plastic trash can FRL testing.





247. Screen capture of ambient environment and forward looking infrared (FLIR) camera video of exemplar plastic trash can fire research testing.



248. Screen capture of full scale FRL testing of exemplar plastic trash can as exposure to fire under exemplar rolling plastic glassware cart with stacked glassware racks.



249. Screen captures of “Master” video of full scale FRL fire testing. It should be noted shortly after dripping plastic was observed, sounds could be heard that were described by observers as “crackling” and “hissing”. Subsequent to crackling and hissing, the fire continued to grow in size until light smoke was observed coming out of the test structure. Video of one series of testing was conducted with audio recording which captured the as described noise(s).





ESTIMATED VALUE OF LOSS:

250. The loss amount is unknown to investigators at the time this report. It is outside the scope of this investigation to determine a loss value.

EVIDENCE:

251. Photographs were taken of the interior and exterior of the vessel, including fire damaged areas, as well as various other points of interest. Photographs were taken by multiple investigators during the fire scene examination process. The Sterno brand chafing fuel container was collected by the USCG. No evidence was collected by ATF.

WEATHER:

252. Weather Underground (www.wunderground.com) reported the weather for Boston, Massachusetts on March 24, 2023, at 22:52 hours as follows: 41° F, humidity 49%, northerly winds at 10 miles per hour (mph), and mostly cloudy conditions.

253. Weather was not a factor in the origin or cause for this fire.

CONCLUSION:

254. The fire scene examination was conducted using a systematic approach defined as the scientific method. Based upon physical evidence, witness statements, video recordings, fire pattern analysis, fire research and testing, and an application of fire dynamics knowledge, the area of fire origin was determined to be the deck of the port aft wait staff station on the Main, Harborview, Deck.

255. The determination of the area of fire origin, and fire cause, is based upon witness statement descriptions of the fire, facts and circumstances which led up to the fire, and the combined knowledge, education, training, and experience of participating fire investigators as applied to the data.

256. The area of fire origin was the aft side deck of the port aft wait staff station under a rolling glassware cart stored along the aft wall outboard.

257. Origin areas hypothesized were Spirit of Boston infrastructure, engine room, and the Main, Harborview, Deck pantry, dining room, and port aft wait staff station. Once the port aft wait station was determined to be the origin area points of origin hypothesized were the upper metal shelf on the forward wall, the plastic trash can stored along the aft wall inboard, and the deck under the rolling glassware cart stored along the aft wall outboard.
258. There was no evidence the fire originated from Spirit of Boston infrastructure. There were no mechanical, or propulsion systems, or liquid fuel lines in the port aft wait staff station. The vessel lighting fixtures, domestic electrical supply components and related electrical conductors were examined and eliminated as a cause of a fire.
259. Fire patterns demonstrated the fire originated in the port aft wait staff station under the inboard rolling glassware cart. Witness statements placed the fire in the port aft wait staff station on the deck under the inboard rolling glassware rack. Video surveillance depicted the fire originated in the port aft wait staff station. The data does not support the hypotheses the fire originated from vessel infrastructure of the Spirit of Boston; therefore, vessel infrastructure of the Spirit of Boston was disproven as an area of fire origin.
260. There was no evidence the fire started in the engine room. The damaged electrical wiring in the engine room was not routed through the port aft wait staff station aft wall and was damaged as an effect of the fire. There was no evidence of radiated heat transfer from the engine room through the deck to the port aft wait staff station.
261. Fire patterns demonstrated the fire originated on the was the aft side deck of the port aft wait staff station under the inboard rolling glassware cart. Witness statements placed the fire in the port aft wait staff station on the deck under the inboard rolling glassware rack. Video surveillance depicted the fire originated in the port aft wait staff station. The conductor damage in the ERAJ Box was determined to be associated with a lack of overcurrent protection on the specified circuits and was caused by exposure to conductive heating through the hull from the port aft wait staff station. The data does not support the hypotheses the fire originated in the engine room; therefore, the engine room was disproven as an area of fire origin.
262. There was no evidence the fire started in the pantry. Fire patterns demonstrated the fire originated on the was the aft side deck of the port aft wait staff station under the inboard rolling glassware cart. Witness statements placed the fire in the port aft wait staff station on the deck under the inboard rolling glassware rack. Video surveillance depicted the fire originated in the port aft wait staff station. The data does not support the hypotheses the fire originated in the galley stores pantry; therefore, the galley stores pantry was disproven as an area of fire origin.
263. There was no evidence the fire started in the dining room of the Main, Harborview, Deck. Witnesses occupied the dining room space when the fire was discovered. Witness statements placed the fire in the port aft wait staff station on the deck under the inboard rolling glassware rack. Video surveillance depicted the fire originated in the port aft wait staff station. The data does not support the hypotheses the fire originated in the Main, Harborview, Deck dining room; therefore, the Main, Harborview, Deck was disproven as an area of fire origin.
264. Evidence supported the hypothesis the fire originated on the aft side deck of the port aft wait staff station under the inboard rolling glassware cart.

265. Fire pattern analysis supported the fire originated in the port aft wait staff station. Fire patterns on exterior wall surfaces of the port aft wait staff station demonstrated the fire originated from within the port aft wait staff station. A distinct “V” fire pattern was formed on the forward port side wall leading to the dining room by the consumption of the metal wall covering, inside the port aft wait staff station along the inside of the port hull area. The metal wall covering was burned directionally almost to deck level, and the aft wall to deck level demonstrated the fire burned for a significant amount of time on the aft side of the port aft wait staff station.
266. The two (2) tiered plastic rolling cart was directionally damaged with damage increasing toward the port aft wait staff station.
267. The plastic trash can along the aft wall inboard was examined. There was no evidence the fire originated in the trash can located against the aft wall of the of the port aft wait staff station. The unburned identifiable contents of the plastic trash can were thermally thin materials. They included a coffee filter, an empty single serve Sysco brand paper sugar packet, paper towel, beverage tea bag, paper drinking straw, and plastic drinking cups. Additionally, the bottom of the plastic trash can liner was unburned. No evidence of an ignition source was in the trash can.
268. 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. The data does not support the hypotheses the fire originated from the trash can; therefore, the trash can was disproven as an area of fire origin.
269. There was no evidence the fire originated in the forward portion of the port aft wait staff station. Witness statements placed the fire on the deck under the inboard rolling glassware rack. No witness stated the fire was observed anywhere other than on the deck. The data does not support the hypotheses the fire originated in the forward portion of the port aft wait staff station; therefore, the forward portion of the port aft wait staff station was disproven as an area of fire origin.
270. After the area of fire origin was determined to be the aft side deck of the port aft wait staff station under the inboard rolling glassware cart, investigators hypothesized natural, incendiary, and accidental causes.
271. Natural fire causes hypothesized were severe weather and seismic events, to include lightning and earthquakes. Neither were experienced the night of the fire. No video evidence corroborates a natural cause for a fire. There was no evidence of a natural fire. The data does not support hypotheses of natural fire causes; therefore, natural fire causes were disproven.
272. Incendiary fire causes hypothesized were the use of an improvised incendiary device (IID) ie: Molotov Cocktail, time delay device, and the deliberate application of a competent ignition source to an ignitable liquid or ordinary available combustibles.
273. The hypothesis of an IID was disproven. Fire growth and development, relative to the time of discovery, is visually consistent with witness statements of a sudden presentation of fire as if an IID had been deployed. However, an IID deployment would have generated visual and audible effects. No witness statements reported seeing any person possessed a portable lighter. No witness statements reported a person possessed an assembled IID, or possessed components, such as a fabric

wicking material, a breakable container, or a container of ignitable liquid, near the port aft wait staff station, prior to the fire being discovered. No witness statements described visual effects of an IID deployment such as, ignition of a wicking material, animated deployment of a breakable container, or an audible effect of container breakage, prior to the discovery of the fire. No video evidence corroborates the use of an IID.

274. All fire debris was sifted and/or x-rayed to locate an IID or IID components. Administrative X-Ray images do not depict any evidence of an IID. There was no evidence of an IID, or components, such as a fabric wicking material, or breakable container. The data does not support the hypothesis of an IID; therefore, an IID fire cause was disproven.
275. The hypothesis of a time delay device was disproven. No witness statements described anyone possessed or utilized a time delay device. No witness statements described any suspicious access to the area of origin. No witness statements described a motive for time delay device usage, such as needing to leave work early. The fire occurred after the conclusion of the dinner cruise and all employees were accounted for when the fire was discovered. No video evidence corroborates the use of a time delay device.
276. All fire debris was sifted and/or x-rayed to locate time delay devices. Administrative X-Ray images do not depict any evidence of an IID. There was no evidence, such as matchbooks, matchboxes, staples, power sources, cigarette butts, rubber bands, clothes pins, mechanical or digital clocks, electrical conductors, or timer components. The data does not support the hypothesis of a time delay device fire cause; therefore, time delay fire causes were disproven.
277. The hypothesis of the deliberate application of a competent ignition source to an ignitable liquid or ordinary available combustibles was disproven. No witness statements described any person pouring an ignitable liquid, any person possessed a container with an ignitable liquid, or any person used an ignitable liquid in the area of fire origin, prior to the fire being discovered. No witness statements described any exposed ordinary combustibles, any person possessed any ordinary combustibles, or any person used ordinary combustibles, in the area of fire origin prior to the detection of the fire. No witness statements described any person with a portable ignition device.
278. All fire debris was sifted and/or x-rayed to locate competent portable ignition sources. Administrative X-Ray images do not depict any evidence of a portable ignition source. There was no evidence of a competent portable ignition source. The data does not support the hypothesis of the deliberate application of a competent portable ignition source to an ignitable liquid or ordinary available combustibles; therefore, the deliberate application of a competent portable ignition source to an ignitable liquid or ordinary available combustibles as a fire cause were disproven.
279. Evidence supported the hypotheses of an accidental fire. Accidental fire causes hypothesized were animal activity, accidental disposal of smoking materials, candles, spontaneous heating, anomalous electrical activity, lithium-ion battery failure, and accidental disposal of a Sterno brand chafing fuel container.
280. Animal activity was disproven as a fire cause. No witness statements described animals contacted or nested in the vessel. No witness statements described animals onboard the vessel. Animal nesting materials or infestation generally takes time for accumulation. Animal nesting materials generally take an extended period of time to transition between smoldering and flaming

combustion. Additionally, animal materials or infestation must transfer sufficient heat energy to an adjacent fuel capable of ignition from said heat energy. Witness statements are inconsistent with the presentation of animal activity fire.

281. All fire debris was sifted and/or x-rayed to locate animal activity. There was no evidence of animal contact, nesting materials, or infestation. The data does not support the hypothesis of animal activity; therefore, animal activity as a fire cause was disproven.
282. Accidental disposal of smoking materials was disproven as a fire cause. No witness statements described anyone smoking in the area of fire origin.
283. All fire debris was sifted and/or x-rayed to locate smoking materials to include cigarette butts, packaging materials, components of portable ignition sources. There was no evidence of smoking materials, packaging, or portable ignition sources. The initial presentation of the fire event is inconsistent with discarded smoking materials. Smoking materials generally take an extended period of time to transition between smoldering and flaming combustion. Additionally, smoking materials must transfer sufficient heat energy to an adjacent fuel capable of ignition from said heat energy. The data does not support the hypothesis of an accidental disposal of smoking materials as a fire cause; therefore, accidental disposal of smoking materials as a fire cause was disproven.
284. Candles were disproven as a fire cause. No witness statements described wax or paraffin oil candle usage in the area of fire origin. No witnesses described disposing of wax or paraffin oil candles in the port aft wait staff station.
285. All fire debris was sifted and/or x-rayed to locate wax and paraffin oil candles. There was no evidence of either wax or paraffin oil candles in the port aft wait staff station.
286. Spontaneous heating was disproven as a fire cause. No witness statements described possession, use, or disposal of drying oils, materials which contained drying oils, or receptacles containing same, capable of an exothermic reaction.
287. All fire debris was sifted and/or x-rayed to locate items susceptible to spontaneous heating or receptacles which contained same. There was no evidence of drying oils, materials which contained drying oils, or receptacles containing same. The data does not support the hypothesis of spontaneous heating as a fire cause; therefore, spontaneous heating as a fire cause was disproven.
288. Anomalous electrical activity was disproven as a fire cause. No witness statements described an electrical failure, malfunction, or anomalous electrical activity, in the port aft wait staff station, or any appliances associated with the damaged engine room wiring, prior to the discovery of the fire.
289. The initial presentation of the fire event is inconsistent with electrical fire causation. There is no evidence of anomalous electrical activity. The data does not support the hypothesis of anomalous electricity activity as a fire cause; therefore, electricity as a fire cause was disproven.
290. Lithium-ion battery failure was disproven as a fire cause. Failures of lithium-ion batteries produce audible, visual, olfactory, and thermal effects. No witness statements described audible, visual, olfactory, or thermal effects of a lithium-ion battery failure prior to the discovery of the fire. No witness statements placed the origin on the upper shelving unit on the forward wall of the port aft

wait staff station. Witness statements placed the fire on the deck under the inboard rolling glassware rack. No witness stated the fire was observed anywhere other than on the deck. The battery housing demonstrated physical damage consistent with exposure to thermal exposure. The data does not support the hypothesis of lithium-ion battery failure as a fire cause; therefore, lithium battery failure as a fire cause was disproven.

291. Evidence supported the hypothesis the fire was caused by the accidental disposal of a Sterno brand chafing fuel container.
292. 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 witness stated the fire was observed anywhere other than on the deck.
293. 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.
294. ATF FRL 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. Full scale testing determined the "snake" of fire was flaming dripping plastic from the rolling cart and/or glassware racks. A Sterno brand chafing fuel container with all of its fuel poured out will burn for approximately ten (10) minutes.
295. 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.

ATTACHMENTS:

1. Boston Fire Department Fire Investigation Unit Incident Report [REDACTED], Dated March 24, 2023
2. ATF Senior Fire Research Engineer (FRE) B. G. [REDACTED]'s Report [REDACTED]
3. Hornblowers Cruises and Events Spirit of Boston Report [REDACTED]