

Lessons Learned from Accident Investigations

NTSB Cites Crew for Smart Decision Making During Engineroom Fire; Urges Fire Detection and Supression Systems on Small Passenger Vessels Carrying More Than 49 Passengers

“I flatly decided we weren’t going to open either engineroom door. We weren’t going to do anything to give the fire any oxygen,” the master of the commuter ferry *Massachusetts* told National Transportation Safety Board investigators after a fire was detected in the vessel’s engineroom while underway in Boston Harbor. The vessel was owned and operated by Massachusetts Bay Lines, operating from Rowe’s Wharf in Boston.

“He made the right calls. Throughout the accident, the master’s prudent decisions promoted the safety of his passengers and crew,” said NTSB Chairman Mark V. Rosenker. The NTSB issued a final accident report in late March.

A few weeks earlier, Rosenker and the other four NTSB Board Members rode another small passenger vessel navigating the same commuter route as the *Massachusetts*, operated by Boston Harbor Cruises. During the visit, Rosenker and NTSB board members had the opportunity to talk to the *Massachusetts* captain and crew. There were no injures as a result of fire, but repairs were estimated at \$800,000. The *Massachusetts* repairs included the installation of engineroom fire detection and suppression systems, an action Rosenker called, “a smart safety and business decision.”

The *Massachusetts* was not equipped with either an engineroom fire detection or suppression system, nor was it required by regulation to do so. The NTSB has identified many other small passenger vessels that fall into the same category as the *Massachusetts* in not being required to have this equipment.

Because of the *Massachusetts* fire, the Safety Board has called on the U.S. Coast Guard to require fire detection and suppression systems in all existing small passenger vessels carrying more than 49 passengers. The NTSB identified 49 passengers as the cut-off for its recommendation to conform to an existing Coast Guard regulatory breakpoint for addressing risk based on passenger capacity. “We want the Coast Guard to require these systems because we are convinced it’s the right thing to do to improve safety .We also encourage other small passenger operators to follow the *Massachusetts* lead by installing these systems,” Rosenker said.

The recently issued report chronicles events leading up to the accident and actions by the crew and emergency responders following the accident. On June 12, 2006, the commuter ferry *Massachusetts* was en route from Rowe’s Wharf in Boston Harbor to Hingham, Massachusetts, carrying 65 passengers and 4 crewmembers. The vessel departed on schedule at 1600. The master delivered a passenger safety briefing over the vessel’s public address system and told passengers about the location and type of lifesaving equipment on board and told them to follow crewmembers’ instructions in case of emergency.

Earlier that day, mechanics were asked to check out problems encountered on previous trips by examining the starboard outboard engine for excessive venting of combustion gases through the valve cover breathers; examining the port generator for sparking, and examining the port inboard engine, which had been idling at a higher speed than normal. Several repairs were made.

Soon after leaving Rowe's Wharf, the master went to the engineroom to bleed air from the air conditioning system. He told investigators that he did not detect anything out of the ordinary and returned to the pilothouse.

Black Smoke

Fifteen minutes later, the upper deck deckhand entered the pilothouse to report black smoke at the vessel's stern. At the same time, the high-water temperature alarm for the port inboard engine sounded. The mate stopped that engine and slowed the remaining three engines from 2000 to 1300 rpm, as directed by the master.

The master said that when he opened the door to the starboard ladderway leading to the engineroom, he encountered heavy smoke and immediately closed the door. He went to the phone at the main deck bar and called the pilothouse, notified the mate, and instructed him to shut down two of the remaining engines. The mate shut down the port outboard engine, which had already lost some power, and the starboard outboard engine, leaving only the starboard inboard engine running.

Lifejackets for Passengers

On his way back to the pilothouse, the master directed the main deck passengers and the main deck deckhand to go to the upper deck, and told the deckhands to give the passengers lifejackets. One of the passengers was a Coast Guard officer commuting home. The master told the officer about the fire and asked for his help in contacting the Coast Guard. The officer used his cell phone to alert the local Coast Guard office.

By that time, the vessel had passed south of Boston Harbor's Long Island Bridge. The master relieved the mate at the helm and ordered him and one deckhand to prepare to drop anchor.

Passenger Evacuation

Meanwhile, the master used VHF channel 13 to contact the commuter ferry *Laura*, also operated by Boston Harbor Cruises. The *Laura* was about 1/2 mile away with three passengers on board. The *Massachusetts* master told the *Laura* master about the fire and asked the *Laura* to come alongside and receive his passengers “expeditiously.” The *Laura* immediately altered course to assist the *Massachusetts*.

The Coast Guard officer reminded the master to turn off the engineroom’s ventilation supply blowers. After turning off the blowers, the master navigated the *Massachusetts* just outside the channel, and ordered the mate to drop anchor. After the vessel was anchored, the emergency fuel shutoff valves were closed. The deckhands returned to the upper deck to assist passengers, and the master turned off the inboard starboard engine. The generator shut down from fuel starvation about 30 seconds after the mate closed the emergency fuel shutoff valves.

About 1630, the *Laura* tied up alongside the *Massachusetts* and the crew led the 65 passengers, wearing lifejackets, down a ladder to the main deck and out through a side doorway directly onto the *Laura*. “Our investigators credit the crew with the orderly transfer of passengers which they told us took about around 5 minutes,” Rosenker said. The NTSB said the *Massachusetts* crew did not remember counting passengers as they left the vessel, but a count was taken and logged on board the *Laura*. At 1635, the *Laura* untied from the *Massachusetts* and moved to a safe distance; state police boarded and checked for casualties, and the *Laura* departed for Hingham Shipyard.

Emergency Response

According to emergency records provided to the NTSB by the Boston Fire Department, the dispatch operations center received nearly simultaneous calls reporting the *Massachusetts* fire from the Coast Guard, at 1641, and Quincy, Massachusetts, police one minute later. At 1644, the center dispatched the fire department's marine unit to the Long Island Bridge from its station, about 6 nautical miles from the accident site. After receiving the call, marine unit personnel boarded the vessel *Firefighter* and were under way in 2 or 3 minutes, the pilot told the NTSB. After boarding the *Massachusetts*, firefighters gained access to the engine space and extinguished the blaze. The vessel was towed later that evening to a dock at Deer Island in Boston Harbor.

“A series of decisive action by the master, crew and emergency responders helped avoid what could have been a catastrophic event,” Rosenker said. “I believe this accident serves as a good example to all small passenger vessel operators, and I hope the marine community will read our report and support our recommendations.”

Final Actions

The *Massachusetts* crew, which had transferred to a Coast Guard utility boat, was transported to the Hingham Shipyard dock, arriving at 2130. The *Massachusetts* was taken under tow by a local harbor tug at 2240 and moved to a pier.

The report concluded that probable cause of the fire was the ignition of diesel fuel by contact with a hot engine surface, which occurred because a fuel line attached to a fuel injector was not properly connected during engine maintenance by a contract mechanic.

Contributing to the extent of the damage was the absence of a fixed fire detection and suppression system, which precluded the crew from receiving timely notification of

the fire and which allowed the blaze to spread throughout the engineroom, the report said.

The NTSB's complete report on the *Massachusetts* fire can be found on their website at

<http://www.nts.gov/publictn/2007/MAB0701.pdf>.