National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: July 3, 2002

In reply refer to: M-02-5 through -14

Admiral Thomas H. Collins
Commandant
U.S. Coast Guard
Washington, D.C. 20593-0001

On the evening of November 17, 2000, the U.S. small passenger vessel *Port Imperial Manhattan*, with three crewmembers and eight passengers on board, was en route to Weehawken, New Jersey, from the borough of Manhattan in New York City, New York, when a fire broke out in the engine room. Crewmembers attempted to extinguish the fire with portable extinguishers, with no success. The fire burned out of control, causing the vessel to lose power and forcing the crew and passengers to abandon the interior spaces. The crew and passengers were rescued by another NY Waterway passenger vessel, and the burning vessel was towed to Manhattan, where the New York City Fire Department extinguished the fire. One passenger was treated for smoke inhalation. No deaths resulted from this accident. The estimated cost to repair the vessel was $1.2 million.[1]

The National Transportation Safety Board determined that the probable cause of the fire on board the *Port Imperial Manhattan* was NY Waterway's inadequate inspection and maintenance of the vessel's electrical system. Contributing to the extent of the damage were the lack of a fixed fire detection and suppression system and the crewmembers' lack of knowledge of proper marine firefighting techniques. Based on its investigation, the Safety Board identified safety issues in the following areas: vessel maintenance; fire detection and suppression systems; crew response to the emergency; lifejacket stowage; safety information provided to passengers; and vessel communications.

From interviews with company officials and reviews of company documents, Safety Board investigators determined that NY Waterway did not have a preventive maintenance program for the hulls, the mechanical systems, and the electrical systems of the vessels in its fleet. Documentation provided by the company indicated that engineroom inspections had been made but lacked details indicating the scope of the maintenance performed and the intervals between the maintenance. Company officials

[1] For further information, read: National Transportation Safety Board, *Fire on board the Small Passenger Vessel* Port Imperial Manhattan*, Hudson River, New York City, New York, November 17, 2000*, Marine Accident Report NTSB/MAR-02/02 (Washington, DC: NTSB, 2002).

stated that a circuit check had been conducted on the electrical system but could not say when the check had been done. Preventive maintenance of the electrical system would have included testing the circuits, checking the junction box, and tightening the electrical wires' connecting bolts, which, in this case, loosened over time and caused the fire.

While this accident resulted from inadequate maintenance of the electrical system, passenger safety cannot be ensured by maintenance of electrical systems alone. Shipboard mechanical systems consist of numerous moving parts that require planned inspections and maintenance to avoid unexpected breakdowns and unsafe conditions for passengers and crew. The preventive maintenance program developed by a company needs to address all systems affecting the safety of passenger vessels.

After the fire, NY Waterway introduced additional checksheets to improve the monthly maintenance of its vessels. However, the use of checksheets is not equivalent to the implementation of a comprehensive preventive maintenance program, which is much broader in scope. A preventive maintenance program for a fleet of vessels should include, as a minimum, established procedures for reporting maintenance and repair needs, for ensuring good interaction between vessel-operating personnel and shoreside maintenance staff, for conducting vessel inspections and repairs, for verifying and/or testing repairs, for retaining and reviewing maintenance and repair records, and for overseeing the maintenance and repair process.

The U.S. Coast Guard (Coast Guard) does not have specific regulations requiring a preventive maintenance program for small passenger vessels. The Federal regulators of other modes of transportation recognize the importance of preventive maintenance to the safety of operations and require that operators have a systematic program for performing inspections and maintenance. The Federal Aviation Administration has promulgated comprehensive maintenance requirements applicable to all airplane operators, which include provisions for inspections, repairs, and preventive maintenance.[2] The Federal Motor Carrier Safety Administration requires that every motor carrier systematically inspect, repair, and maintain, or cause to be systematically inspected, repaired, and maintained, all motor vehicles subject to its control,[3] In addition, the Federal Railroad Administration has extensive inspection and maintenance requirements for locomotives, train cars, crossing signals, and tracks.[4]

Because no authority other than the Coast Guard exercises oversight over domestic small passenger vessels, the Safety Board believes that the Coast Guard should require that companies operating domestic passenger vessels develop and implement a preventive maintenance program for all systems affecting the safe operation of their vessels, including the hull and the mechanical and electrical systems.

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[2] The requirements are specified at 14 CFR parts 43 and 91.

[3] Maintenance requirements are specified at 49 CFR 393.3.

[4] Inspection and maintenance requirements are specified at 49 CFR parts 213, 215, 229, and 231.

In this accident, the fire on the *Port Imperial Manhattan* probably was in the incipient phase for some time before entering the free-burning phase. Unfortunately, the crewmembers were unaware of the fire until it fully involved the engineroom. A fire detection system in the engineroom would have probably detected the fire during its incipient stage and alerted the crewmembers to the presence of a fire while it was still small enough for them to be able to extinguish it. However, the *Port Imperial Manhattan* did not have a fire detection system for its engineroom. Once the fire reached the free-burning stage, the crewmembers were faced with a much more serious and life-threatening fire.

According to Federal regulations, a vessel constructed, converted, or issued an initial Certificate of Inspection (COI) on or before March 10, 1996, is exempt from the requirement for fire detection systems unless the vessel's hull or machinery space boundary bulkhead or deck is composed of wood or fiber-reinforced plastic or its interior is sheathed with fiber-reinforced plastic. Because the *Port Imperial Manhattan* was built of aluminum in 1987, the vessel was not required to have a fire detection system.

The Safety Board does not consider the date of build, conversion, or certification to be an appropriate factor for determining whether a vessel should or should not be required to have an installed fire detection system. The sole reason for requiring the installation of such a system should be the risk factors involved. As with most small passenger vessels, the engineroom on the *Port Imperial Manhattan* was unmanned; no one was in the space to continuously monitor the fire-safe condition. Because the engineroom is the location of most ignition sources for fires, including hot surfaces, fuel and lubricating oils, and electrical equipment, this space is where the greatest fire risk exists on a vessel. Moreover, as the service life of a vessel increases, the potential for failure or breakdown in system components increases. As they age, engine hoses deteriorate, electrical parts fail, and the overall condition of an engineroom declines.

Because new small passenger vessels are required to have fire detection systems to protect their enginerooms and older existing vessels in the same service are not, two standards of safety exist. More importantly, the vessels with the higher risk are permitted to adhere to the lower standard. The Safety Board, therefore, believes that the Coast Guard should require that all small passenger vessels in commuter and ferry service, regardless of their date of build, be fitted with a fire detection system in the engineroom.

From the time that crewmembers discovered the *Port Imperial Manhattan*'s fire, it was beyond their capability to extinguish it with portable fire extinguishers. The vessel's fire main system was charged by a primary fire pump, which, in turn, was driven by the main diesel engine. The deckhands would have had to enter the engineroom in order to start the pump; however, they could not do so because the engineroom was on fire. The auxiliary fire pump served as a bilge pump during normal operations. However, to align the valves and activate the pump so that it would provide water to the fire main, the deckhands would have had to enter the engineroom, which was not possible.

Federal regulations require that "new" small passenger vessels, that is, those built, converted, or issued an initial COI on or after March 11, 1996, have a fire pump that is

capable of both remote operation from the operating station and local operation at the pump. Because the *Port Imperial Manhattan* was built before this cut-off date, it was not required to have remotely operated fire pumps. Had the fire pumps on the *Port Imperial Manhattan* been capable of remote operation, the deckhands might have been able to charge a fire hose and knock down the fire or limit its spread. Based on its findings in this accident, the Safety Board concluded that the lack of remotely operated fire pumps on the *Port Imperial Manhattan* compromised the ability of the crew to control the fire and that the lack of a remotely operated fire pumps on other small passenger vessels in commuter and ferry service built before March 11, 1996, similarly impairs the ability of their crews to control engineroom fires. The Safety Board therefore, believes that the Coast Guard should require that all small passenger vessels in commuter and ferry service, regardless of their date of build, be fitted with remotely operated fire pumps.

In the Safety Board's opinion, the most effective method that the crewmembers could have used to extinguish this fire would have been to seal the engineroom by closing all vent openings and doors and then activate a fixed fire suppression system. Unfortunately, the *Port Imperial Manhattan* was not equipped and was not required to be equipped with a fixed fire suppression system to protect its engineroom. If the *Port Imperial Manhattan* had been equipped with a fixed fire suppression system, it could have extinguished the fire before it spread to other parts of the vessel, thus limiting the damage to the vessel and the threat to the people on board. Further, it would have freed the deckhands of active firefighting duties and allowed them to concentrate their efforts on taking care of the passengers during the fire emergency.

At the time of the fire, the *Port Imperial Manhattan* was the only vessel in NY Waterway's fleet that did not have a fire detection and suppression system protecting its engineroom. As a result of this fire, NY Waterway plans to rebuild the *Port Imperial Manhattan* with a detection and suppression system for its engineroom.

The small passenger vessel industry continues to grow, and other owners and operators presently have many older vessels in service. While the Safety Board could not determine how many vessels certificated under Subchapter T were operating in commuter service, Coast Guard records indicate that of 4,835 small passenger vessels built before March 11, 1996, 951 were permitted to carry in excess of 100 passengers. Further, records of the Passenger Vessel Assocation indicate that its member companies, which have about 65 percent of the small passenger vessels in service nationwide, carry up to 200 million passengers annually. Because older vessels are not required to have fire suppression systems in their engineroom, the passengers on board these vessels are at increased risk. The Safety Board, therefore, believes that the Coast Guard should require that all small passenger vessels in commuter and ferry service, regardless of their date of build, be fitted with a fixed fire suppression system in their enginerooms.

In response to the fire on board the *Port Imperial Manhattan,* the crewmembers' first actions were directed at locating and fighting the fire and then at securing the safety of the passengers. Upon arriving at the access door to the engineroom, the deckhands did not follow accepted firefighting procedures for opening a door into a space suspected of being on fire. They simply opened the engine room door, which not only allowed

additional oxygen to enter the area and feed the fire but also put them at risk of injury. Once they identified that a fire was in the engineroom, the crewmembers did not immediately notify the master. Rather, they both stood at the doorway to the engineroom and tried to extinguish the fire using portable CO_2 extinguishers, which had no effect on the fire. Their actions demonstrated that they were not properly trained in the use and limitations of the various types of fire extinguishers. If they had been properly trained, they would have known that they could not control or extinguish the fire from a distance using portable devices.

Other actions of the deckhands exacerbated the fire and smoke conditions, which again demonstrates that they did not know how to properly respond to the fire. Before evacuating the main cabin, one deckhand opened the exterior door to the stern to allow smoke to dissipate from the main cabin. After evacuating the main cabin, crewmembers did not close the exterior stern door or the engineroom door. By leaving the doors to the engineroom and to the exterior stern open, the crew provided a source of fresh air to the fire and a pathway for the fire and smoke to spread beyond the engineroom into the main passenger cabin, eventually filling the main cabin with thick black smoke.

Federal regulations do not require that the masters and deckhands on small passenger vessels receive formal firefighting training. Rather, the requirements at 46 CFR 185.420 and 185.520 stipulate, in part, that the owner, charterer, master, or managing operator provide "instruction" to newly hired deckhands as to "the duties that the crewmember is expected to perform in an emergency," and that the master conduct "sufficient fire drills to make sure that each crew member is familiar with his or her duties during emergencies." The format and depth of the required instruction for new deckhands is not specified in the regulations but is left to the discretion of the individual company. Likewise, the requirement for masters to hold "sufficient fire drills to make sure that each crewmember is familiar with his or her duties" is subject to discretionary compliance in so far as the depth of "familiarity" with duties is concerned. However, because masters are not required to complete fire training, they are ill prepared to train others or to evaluate the effectiveness of drills.

The required instruction and drills aim at familiarizing crewmembers with duties to be performed during an emergency; they do not require that crewmembers receive in-depth training about how to perform those duties. Before the fire, NY Waterway, in accordance with Federal regulations, had provided basic familiarization instruction to its new employees and had required that regular fire drills be held under the direction of the vessel master. The instruction and drills, however, were not adequate to enable the crew to properly respond to the fire on the *Port Imperial Manhattan.*

The Safety Board has investigated past accidents on small passenger vessels where crew training in emergency procedures was a concern. On December 3, 1994, the small passenger vessel *Argo Commodore*, with 4 crewmembers and 41 passengers on board, was about 1 hour into a dinner cruise of San Francisco Bay, California, when crewmembers discovered a fire in the engineroom. In analyzing the crew's handling of the emergency, the Safety Board found their response effort was inadequate, in part, because they had not participated in firefighting or evacuation drills and had been given

ineffective on-the-job training.[5] As a result of its findings in the *Argo Commodore* accident investigation, the Safety Board issued the following safety recommendation to the Coast Guard:

> M-95-42
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> Verify crew competence and company preplanning for emergencies either by routinely witnessing emergency drills at every annual inspection or by some other means of regulatory oversight.

On January 10, 1996, the Coast Guard subsequently revised 46 CFR 185.524 requiring that Coast Guard marine inspectors conduct emergency drills during their annual inspections of vessels and log when such drills were conducted. Because the regulatory revision satisfied the intent of the recommended action, the Safety Board classified Safety Recommendation M-95-42 "Closed–Acceptable Alternate Action."

As a result of the same investigation, the Safety Board issued the following safety recommendation to the Coast Guard:

> M-95-40
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> Establish mandatory standards for qualifications and training of crewmembers aboard small passenger vessels.

In its response letter to the Safety Board, the Coast Guard stated that the CFR changes requiring the on-board training and drills in emergency procedures and equipment satisfied the recommendation. The Safety Board disagreed and, on March 12, 1997, classified Safety Recommendation M-95-40 "Closed–Unacceptable Action."

Effective marine firefighting requires responders to identify the phase and class of the fire and to determine the most efficient way to extinguish it. Firefighters have to understand basic fire chemistry, be aware of the causes of fire phenomena, such as flashover and backdraft, and know the procedures for properly executing both direct and indirect attacks on a fire. Firefighters must also know the proper use and limitations of extinguishing agents and firefighting equipment and the personal safety procedures to follow in conducting firefighting operations. From their actions, it was clear that, despite participating in regular drills, the *Port Imperial Manhattan*'s crewmembers lacked the basic knowledge of proper firefighting procedures and that their lack of knowledge rendered their efforts ineffective.

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[5] For more information, see National Transportation Safety Board, *Fire Aboard U.S. Small Passenger Vessel* Argo Commodore *in San Francisco Bay, California, December 3, 1994*, Marine Accident Report NTSB/MAR-95-03 (Washington, DC: NTSB, 1995).

There is a distinct difference between on-board drilling and formal training. Specifically, drilling reinforces training by applying the techniques learned to specific vessels and crews. As shown in the *Argo Commodore* and the *Port Imperial Manhattan* fires, such instruction and drills did not provide adequate training for the crews to respond correctly to the emergency. To its credit, NY Waterway has voluntarily instituted a new training program for all of its crewmembers, including captains and deckhands, which includes at least 1 day of training in marine firefighting. Such training probably should make the company's crews more knowledgeable of proper fire response measures.

The Safety Board considers it equally important for other small passenger vessel operators in the commuter trade to provide fire safety training to its deckhands. If a fire breaks out on board a commuter vessel, the deckhands will have to fight or control it until outside assistance can arrive. For their safety and for the safety of the passengers on board, these deckhands should be trained in proper procedures to follow and actions to take for all foreseeable fire scenarios. The Safety Board, therefore, believes that the Coast Guard should establish firefighting training requirements for crewmembers on board small passenger vessels in commuter and ferry service.

The Safety Board recognizes that the regulatory process takes a long time to complete and is convinced that some interim measure to provide improved training for these deckhands is needed to improve fire safety on small passenger vessels. Currently, Navigation and Vessel Inspection Circular (NVIC) No. 1-91, "Recommended Qualifications for Small Passenger Vessel Deckhands" provides the Coast Guard's guidance to the small passenger vessel industry on fire training and qualifications of deckhands. This document, however, contains merely a general outline of subject areas that deckhands should "be familiar with" rather than detailed guidance. Small passenger vessels in commuter and ferry service carry millions of passengers each year and these vessels continue to be vulnerable to fire. In light of the time needed to promulgate new regulations, and of the high number of passengers at risk, the Safety Board believes that, as an interim measure, the Coast Guard should revise NVIC No. 1-91 so that it provides more in-depth guidance in training and drills for firefighting on board small passenger vessels.

When the fire was discovered on the vessel, several passengers were in the main cabin and the others were on the upper deck. After one of the deckhands expended a portable fire extinguisher into the engineroom, he instructed the passengers in the main cabin to go to the foredeck. However, he did not inform them of the seriousness of the situation or provide them with lifejackets before they left the passenger cabin. When the passengers arrived at the foredeck, no crewmember was there to instruct them in emergency procedures or to manage their safety. The passengers milled about on the foredeck and began to discuss among themselves what they should do to protect themselves from the fire.

Neither the master nor the deckhands could attend to the passengers during the early stages of the emergency because they were trying to extinguish the fire or alert others to their situation. The inability of the crew to manage the passengers caused some passengers to panic and take actions that potentially placed them in jeopardy. One

passenger reentered the smoke-filled passenger cabin to retrieve lifejackets for him and the other passengers. This action placed him in a life-threatening situation in which he could have been overcome by the smoke before he could make it safely back to the foredeck. Another passenger, after hearing an explosion on board the vessel, had to be restrained from jumping into the river. Given the low visibility at night, the swiftness of the current, and the coldness of the water, a passenger jumping over the side without a lifejacket probably would have drowned before being located and rescued by responders.

During a shipboard emergency, crewmembers need to be able to take appropriate action to deal with the emergency and to protect their own safety as well as the safety of passengers. However, in order for crewmembers to maintain control of the passengers during an emergency, they must be properly trained. Crowd management courses should include, at a minimum, training in the following areas to enable crewmembers to assist passengers during emergencies:

- Awareness of emergency plans and instructions and the knowledge of emergency exits and evacuation restrictions;

- Ability to assist passengers en route to muster and embarkation stations, including how to give clear reassuring orders, how to control passenger movement, how to keep escape routes clear of obstructions, how to evacuate disabled people and those needing special assistance, and how to search accommodation spaces; and

- Knowledge of effective mustering procedures, including the ability to use effective procedures for keeping order and for reducing and avoiding panic and the ability to ensure that the passengers have donned their lifejackets correctly.

The instruction and drills provided to the crew of the *Port Imperial Manhattan* did not prepare them for providing the necessary control of the passengers during the fire emergency. Fortunately, only eight passengers were on board at the time of the fire. However, the vessel was certificated to carry as many as 350 passengers at one time and if more passengers had been on board and if they had panicked or taken actions that placed them in jeopardy, the consequences could have been significantly more serious.

Based on its findings in this accident, the Safety Board concluded that, without proper training, the masters and deckhands on small passenger vessels in commuter and ferry service are ill-prepared to control large numbers of passengers during fires or other shipboard emergencies. The Safety Board, therefore, believes that the Coast Guard should require that owners and operators of small passengers vessels in commuter and ferry service provide crowd control training to their vessel operating crews. The Safety Board furthermore believes that, in the interim, before regulatory requirements become effective, the Coast Guard should revise NVIC No. 1-91 to provide detailed guidance for the small passenger vessel industry concerning proper crowd control management procedures for masters and deckhands to follow during a shipboard fire or other emergency.

On the *Port Imperial Manhattan*, all of the passenger lifejackets were stowed in lockers at the aft end of the main cabin, next to the engineroom door, rather than distributed throughout the vessel. A passenger, and later the master, entered the smoke-filled cabin, risking serious injury, to retrieve lifejackets for the passengers. Adult and child-size lifejackets were not segregated in the lockers. Therefore, when the lifejackets were distributed, an adult passenger mistakenly received a child-size one.

Lifejackets are essential safety appliances that should be donned by the passengers in the earliest moments of a fire. Passengers may have to retrieve and don lifejackets without assistance because the crewmembers may be devoting their attention to the fire. Stowing lifejackets in one area on a vessel makes them vulnerable to becoming inaccessible during an emergency. For example, if the fire occurred between the crew and passengers and the stowage area, retrieving the lifejackets might be impossible. Using a single stowage area can also cause serious problems even when the area is not physically cut off. If a vessel were carrying a large number of passengers and they had to retrieve lifejackets from a central location, the crush of people all heading to the same location could incite panic and cause injury. In addition, stowing child-size lifejackets with adult-size lifejackets increases the chances that passengers will receive the wrong size jacket during an emergency.

The Safety Board is concerned that other operators of small passenger vessels have vessels on which the stowage of lifejackets is not properly distributed and/or the lifejackets are not segregated by size. Federal regulations stipulate that that lifejackets on small passenger vessels shall be stowed so that adult and child-size jackets are segregated from each other and that they are "in convenient places distributed throughout accommodation spaces." Coast Guard inspectors must check the lifejackets and stowage areas during their periodic examinations. However, as a practice, the vessel operators generally remove the jackets from their stowage locations to facilitate an inspector's review. As a result, inspectors can overlook problems related to the stowage of the lifejackets. The Safety Board, therefore, believes that the Coast Guard should issue a directive to small passenger vessel operators to review the distribution of lifejackets on board their vessels and to ensure that the lifejackets are accessible and segregated.

In this accident, the passengers on the *Port Imperial Manhattan* did not receive a verbal safety briefing before the onset of the voyage. Several passengers indicated that they didn't realize the potential seriousness of the situation when they were asked to move to the outer deck. Once on the foredeck, they discussed whether they needed lifejackets and what actions they might have to take.

The Safety Board has long been a proponent of safety briefings on small passenger vessels, encouraging owners and/or operators to incorporate prevoyage verbal safety briefings to passengers into their operating procedures and asking the Coast Guard to make safety briefings mandatory. A verbal safety briefing serves multiple purposes. It informs the passengers about emergency procedures and refreshes the crewmembers' understanding of those procedures. A safety briefing also gives passengers the opportunity to ask questions if they do not understand the procedures.

In its investigation of the 1994 *Argo Commodore* accident, the Safety Board found that the safety placard on the small passenger vessel did not fulfill its intended purpose. At that time, Federal regulations gave the owner the option of using either a safety placard or a safety briefing. Based on its findings in the *Argo Commodore* fire, the Safety Board issued the following safety recommendation to the Coast Guard:

> M-95-41
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> Require that the operators of small passenger vessels conduct a passenger safety briefing prior to departure to include: the location of lifesaving equipment; the use of such equipment; and proper procedures to follow during the course of an emergency evacuation or other on-board emergency.

As a result of this recommendation, the Coast Guard revised CFR 185.506 to require that the masters of small passenger vessels ensure that suitable public announcements are made informing all passengers of, among other safety information, the location of lifejackets, emergency exits, survival craft embarkation areas, and instructional placards for lifejackets and other lifesaving devices. The regulations also require that the crewmembers advise all passengers that they may be required to don lifejackets when hazardous conditions exist and that the passengers receive a demonstration either collectively or individually on how to don a lifejacket. The regulations, however, allow an exception to the requirement for a verbal safety brief. The regulation states, in part, "Ferries operating on short runs of less than 15 minutes may substitute bulkhead placards or signs for the announcement if the OCMI determines that the announcements are not practical due to the vessel's unique operation."

The Coast Guard had granted NY Waterway an exception from the verbal safety briefing to passengers at the onset of voyages because the trips of the company's vessels lasted less than 15 minutes. The exception did not eliminate the requirement for safety placards, and the *Port Imperial Manhattan* did have placards posted in the main cabin.

The Safety Board maintains that basic safety information needs to be announced to passengers on any vessel before the onset of waterborne operations, regardless of the length and duration of a voyage. An emergency can arise at any moment while the vessel is underway and, given the limited number of crewmembers per passenger, people need to be able to take basic initial actions for their own safety. Essential actions that adult passengers should be able to take include obtaining and donning lifejackets for themselves and for their children and going to the proper assembly area.

Vessel operators should not rely on passive notification such as posted placards to provide essential safety information to passengers. Passengers may not read placards before an emergency. On the other hand, a short verbal safety announcement can focus the attention of passengers on basic safety information that they need to know in order to respond correctly in the event of an emergency. Given the ready availability of technology that allows for prerecorded safety briefings to be aired over intercom and loudspeaker systems, commuter vessels and ferries can readily provide verbal safety briefs without crewmembers having to take time away from other vessel operation

activities. The Safety Board, therefore, believes that the Coast Guard should eliminate the waiver for verbal safety briefings and require that such briefings be given to passengers on all small passenger vessels.

In summary, the National Transportation Safety Board makes the following safety recommendations to the U.S. Coast Guard:

Require that companies operating domestic passenger vessels develop and implement a preventive maintenance program for all systems affecting the safe operation of their vessels, including the hull and the mechanical and electrical systems. (M-02-5)

Require that all small passenger vessels in commuter and ferry service, regardless of their date of build, be fitted with a fire detection system in the engineroom. (M-02-6)

Require that all small passenger vessels in commuter and ferry service, regardless of their date of build, be fitted with remotely operated fire pumps. (M-02-7)

Require that all small passenger vessels in commuter and ferry service, regardless of their date of build, be fitted with a fixed fire suppression system in the engineroom. (M-02-8)

Establish firefighting training requirements for crewmembers on board small passenger vessels in commuter and ferry service. (M-02-9)

Revise Navigation and Vessel Inspection Circular No. 1-91 so that it provides more in-depth guidance in training and drills for firefighting on board small passenger vessels. (M-02-10)

Require that owners and operators of small passengers vessels in commuter and ferry service provide crowd control training to their vessel operating crews. (M-02-11)

Revise Navigation and Vessel Inspection Circular No. 1-91 to provide detailed guidance for the small passenger vessel industry concerning proper crowd control management procedures for masters and deckhands to follow during a shipboard fire or other emergency. (M-02-12)

Issue a directive to small passenger vessel operators to review the distribution of lifejackets on board their vessels and to ensure that the lifejackets are accessible and segregated. (M-02-13)

Eliminate the waiver for verbal safety briefings and require that such briefings be given to passengers on all small passenger vessels. (M-02-14)

As a result of this investigation, the Safety Board also issued safety recommendations to the Federal Communications Commission, NY Waterway, and the Passenger Vessel Association. The Safety Board would appreciate a response from you within 90 days addressing actions you have taken or intend to take to implement our recommendations. In your response to the recommendations in this letter, please refer to M-02-5 through -14. If you need additional information, you may call (202) 314-6177.

Chairman BLAKEY, Vice Chairman CARMODY and Members HAMMERSCHMIDT, GOGLIA, and BLACK concurred in these recommendations.

Original Signed

By: Marion C. Blakey
Chairman