National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: March 18, 2005

In reply refer to: M-05-07

Governors of 40 States, Puerto Rico, and U.S. Virgin Islands
(list attached)

The National Transportation Safety Board (Safety Board) is an independent Federal agency charged by Congress with investigating transportation accidents, determining their probable cause, and making recommendations to prevent similar accidents. We are providing the following information to urge you to take action on the safety recommendation in this letter. The Safety Board is vitally interested in this recommendation because it is designed to prevent accidents and save lives.

The recommendation addresses the voluntary implementation of safety management systems by ferry operators in the United States and its territories or commonwealths. The recommendation derives from the Safety Board's investigation of the allision of the Staten Island Ferry *Andrew J. Barberi* with a maintenance pier at St. George, Staten Island, on October 15, 2003, and is consistent with the evidence we found and the analysis we performed.[1]

At the time of the accident, the *Andrew J. Barberi*, owned and operated by the New York City Department of Transportation, was at the end of a regularly scheduled trip from Manhattan to Staten Island, with 15 crewmembers and an estimated 1,500 passengers on board. The assistant captain was at the controls but, for reasons that could not be determined, was unresponsive to cues of the impending allision. Except for one deckhand, the crewmembers also did not recognize that the ferry was in danger. Ten passengers died in the accident and 70 were injured. An eleventh passenger died 2 months later as a result of injuries sustained in the accident. Damages totaled more than $8 million, including repair costs of $6.9 million for the *Andrew J. Barberi* and $1.4 million for the pier.

The Safety Board determined that the probable cause of the accident was the assistant captain's unexplained incapacitation and the failure of the New York City Department of Transportation to implement and oversee safe, effective operating

[1] For further information, see *Allision of Staten Island Ferry* Andrew J. Barberi, *St. George, Staten Island, New York, October 15, 2003*, Marine Accident Report NTSB/MAR-05/01 (Washington, DC: National Transportation Safety Board, 2005). The report will be available on the Safety Board's website <www.ntsb.gov/publictn/M_Acc.htm>.

procedures for its ferries. Contributing to the cause of the accident was the failure of the captain to exercise his command responsibility over the vessel by ensuring the safety of its operations.

In the Safety Board's opinion, the serious safety deficiencies in the Staten Island Ferry operations that led to the accident could have been addressed by an aggressive safety management system. A safety management system is a structured, documented, multiphase plan of operation developed by an organization to identify, minimize, and manage risks associated with its operations. In the marine industry, ship owners and operators are encouraged, or in some cases required, to develop safety management systems to enhance the safe operation of vessels, prevent injury or loss of life, and avoid damage to the environment. Safety management systems allow organizations to resolve safety problems before accidents or injuries occur, rather than simply complying with regulations imposed from outside.

The purpose of a marine safety management system is to create a "culture of safety" by documenting a vessel owner's operational policy, chain of authority, and operational and emergency procedures; specifying the responsibilities of the owner or operator, managers, and masters; and outlining procedures for management review, internal audits, and correction of "nonconformities" (failure to adhere to procedures or regulations). Procedures are compiled in a safety management manual and a copy is kept on board every vessel. A person or persons are designated in writing to monitor the safety management system, and managers conduct regular audits to ensure that employees follow the procedures. Checklists are supplied for critical areas and when deficiencies are noted or when an accident or a nonconformity occurs. Corrective action is taken until the problem is resolved, and the problem is documented from start to finish. External audits are performed by an approved outside organization, usually a marine classification society, contracted by the operating organization. The external auditor reviews the results of the organization's internal audits and all elements of its management system. The auditor questions management and vessel crews about their knowledge of the safety management system, examines safety records, and verifies that procedures are followed.

Safety management systems are mandatory for U.S.-flag vessels on international voyages under Title 33 *Code of Federal Regulations* (CFR) Part 96. The Federal regulations do not apply to U.S. vessels that operate only on domestic waters, including the Staten Island Ferry and most other ferry operations in the country. However, the regulations allow vessel operators to voluntarily meet the standards and have their safety management systems certificated. The Coast Guard provides guidance for voluntary compliance.[2] An equivalent to compliance with the Federal regulations regarding safety

[2] U.S. Coast Guard, *Marine Safety Manual*, vol. II, section E, chapter 3, "Safety Management Systems (SMS)" (revised May 2000) < http://www.uscg.mil/hq/g-m/nmc/pubs/msm/v2/tocech3.pdf>.

management systems has also been established for small passenger vessels for which full accordance would be "too extensive." Vessel operators may apply in writing to participate in the equivalent program. The Coast Guard has prepared guidance documents (booklet and computer disc) for companies to use in developing equivalent safety management systems.

The Coast Guard has concluded from its casualty studies that "in excess of 80 percent of all high consequence marine casualties may be directly or indirectly attributable to the 'human element'" and has stated that "the use of safety management systems by all U.S. commercial vessels would result in significant benefits and [that it] will support the development of such programs."[3] According to the National Ferry Database, ferry systems operate in 40 of the 50 States and some territories.[4] Statistics from the American Public Transportation Association show that ferries operated by 42 transportation agencies carried nearly 58 million passengers in 2002, and that annual ferry ridership exceeds 1 million in five urban areas.[5] The largest ferry system in the United States, in terms of both ridership and vessel size, is the Washington State Ferries, which is owned and operated by the Washington State Department of Transportation. The ferries operate under a comprehensive safety management system that specifies procedures for the entire fleet, for each vessel, and for each route.

A safety management system necessitates a cultural change in an organization, where the safety of operations is the objective behind every action and decision by both those who oversee procedures and those who carry them out. The system leads to standardized and unambiguous procedures for each crewmember, during both routine and emergency operations. Duties and responsibilities are specified for each staff member and for standard and emergency operations. Supervisory and subordinate chains of command are also delineated.

Since the *Andrew J. Barberi* accident, the New York City Department of Transportation has indicated to the Safety Board that it is implementing a safety management system for its ferries and expects to have it certificated by December 2005. The Board is concerned, however, that the absence of safety management systems on ferries operated elsewhere could result in the type of safety-deficient operation found on the Staten Island ferries and put thousands of passengers at risk daily on U.S. waterways.

The Safety Board recognizes that safety management systems are not mandatory for domestic passenger vessels under current Federal regulations. The Board believes, however, that passengers on domestic vessels should enjoy the same high level of safety as required of U.S. oceangoing vessels. The Board hopes that the Governors will take action to protect the traveling public by promoting the voluntary implementation of safety management systems on passenger ferries, and therefore makes the following safety recommendation to you as Governor:

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[3] *Federal Register*, vol. 62, no. 247 (December 24, 1997), pp. 67492 and 67503.

[4] National Ferry Database, U.S. Department of Transportation, Bureau of Transportation Statistics <www.transtats.bts.gov/Tables>.

[5] <www.apta.com/research/stats/ferry/fbagency/cfm>.

Encourage your public ferry operators to voluntarily request application of the Federal requirements at 33 CFR 96 for implementing a safety management system, if they have not already done so. (M-05-07)

As a result of its investigation of the *Andrew J. Barberi* allision, the Safety Board has also issued safety recommendations to the New York City Department of Transportation, the U.S. Coast Guard, the Passenger Vessel Association, and 41 other Governors. The Board would appreciate a response from you within 90 days addressing actions you have taken or intend to take to implement our recommendation. In your response, please refer to M-05-07. If you need additional information, you may call (202) 314-6177.

Chairman ENGLEMAN CONNERS, Vice Chairman ROSENKER, and Members CARMODY, HEALING, and HERSMAN concurred in this recommendation.

[original signed]

By: Ellen Engleman Conners
Chairman

Allision of Staten Island Ferry *Andrew J. Barberi*, St. George, Staten Island, New York, October 15, 2003

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