National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: March 18, 2005

In reply refer to: M-05-01 through -03

Ms. Iris Weinshall
Commissioner, New York City Department of Transportation
40 Worth Street
New York, New York 10013

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 from occurring. We are providing the following information to urge you to take action on the safety recommendations in this letter. The Safety Board is vitally interested in the recommendations because they are designed to prevent accidents and save lives.

The recommendations address safety issues involving operational oversight of the Staten Island Ferry by the New York City Department of Transportation (NYC DOT). The recommendations derive from the Safety Board's investigation of the allision involving the Staten Island Ferry *Andrew J. Barberi* at St. George, Staten Island, on October 15, 2003, and are consistent with the evidence we found and the analysis we performed.[1] At the time of the accident, the *Andrew J. Barberi* 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.

The Safety Board determined that the probable cause of the accident was the assistant captain's unexplained incapacitation and the failure of the NYC DOT to implement and oversee safe, effective operating 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.

[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>.

To determine whether the assistant captain's incapacitation had a medical explanation, the Safety Board studied his medical history, including the results of medical evaluations required by the U.S. Coast Guard. The Board found that the NYC DOT relied on the Coast Guard, through its medical certification system for mariners, to ensure that Staten Island Ferry employees were medically fit. The NYC DOT had no independent medical standards for its ferry operators and did not keep records of employees' medical examinations that were required by the Coast Guard.

Coast Guard regulations require mariners with pilot endorsements to undergo an annual physical examination, in addition to the examinations required every 5 years of all licensed mariners. Licensed pilots are required only to make the results of their most recent physical examination available to the Coast Guard "upon request." The Safety Board's investigation found, however, that the Coast Guard did not ask any Staten Island Ferry captain or assistant captain for proof of compliance with the annual medical evaluation requirement in the 12 months before the accident. The NYC DOT operates ferries that can carry as many as 6,000 passengers, the largest number carried by any vessel in the United States. In the Safety Board's opinion, as part of its responsibility for the safety of its passengers, the NYC DOT should take steps to ensure that the pilots of its ferries comply with Coast Guard medical certification requirements.

The Safety Board found that the standard operating procedures of the Staten Island Ferry before the accident were so ambiguous as to be of little use in addressing potential risks to passenger safety. No formal safety management system was in place for the ferries, nor was one required to be, and NYC DOT management had not voluntarily instituted such a system. In organizations that lack proactive risk-reduction measures, deterioration in operational safety margins may go unnoticed. Organizational complacency, attention to costs rather than safety, and the lack of accountability can lead organizations to fail to recognize and act on safety risks until an accident occurs. In operations such as the Staten Island Ferry, where risks can lead to catastrophic loss of life, there is little room for such complacency. Aggressive safety management systems are chief among the countermeasures against organizational complacency recommended by maritime authorities (and required of oceangoing vessels).

After the accident, the NYC DOT commissioned the Global Maritime and Transportation School at the U.S. Merchant Marine Academy (GMATS) to assess its ferry operations.[2] Among other recommendations, GMATS suggested that the NYC DOT adopt a safety management system for the Staten Island Ferry. GMATS specified that the Staten Island Ferry safety management system should incorporate the following elements:

(1) A safety and environmental protection policy.

(2) Instructions and procedures to ensure safe operation of ferries and protection of the environment in compliance with relevant international, national, and local laws and regulations.

[2] Global Maritime and Transportation School at the U.S. Merchant Marine Academy, "Assessment of Staten Island Ferry Operations," prepared for NYC DOT, February 12, 2004.

(3) Defined levels of authority and lines of communication between, and amongst, shore-based and ferry personnel.

(4) Procedures for reporting accidents and nonconformities with the provisions of the safety management system.

(5) Procedures to prepare for and respond to emergency situations.

(6) Procedures for internal audits and management reviews.

As stated in the GMATS assessment, the goals of a safety management system for the Staten Island Ferry would be to "provide for safe practices in ferry operations and a safe working environment, establish safeguards against all identified risks, and continuously improve safety management skills of personnel ashore and aboard ferries, including preparing for emergencies related both to safety and [to] environmental protection." In a letter to the Safety Board in July 2004, the NYC DOT indicated that it agreed with the GMATS recommendation and planned to implement such a system. In February 2005, the NYC DOT informed the Safety Board that it had retained an organization to develop its safety management system. The NYC DOT further stated that it expected to have the system completed by October 2005 and to receive a Document of Compliance by the end of 2005. The Board supports the NYC DOT's actions in implementing a safety management system as being in the best interest of safety in Staten Island Ferry operations.

The GMATS assessment also recommended that the NYC DOT acquire navigation technology such as automatic radar plotting aids, automatic identification systems, and electronic chart display and information systems, as well as digital, multidirectional vessel speed indicators with alarm functions that provide vessel speed information to vessel operators, including approach speed to berths. The GMATS assessment concluded that the installation of integrated navigation bridge systems "will be crucial to provide enhanced safe navigation of the vessels." GMATS also recommended that the NYC DOT accelerate the installation of prerecorded, automated safety and emergency announcements, to be delivered over the public address system before the ferries depart and when they approach the pier.

In its letter of February 2005, the NYC DOT informed the Safety Board that it had already installed global positioning system receivers, automatic radar plotting aids, and automatic identification systems on its vessels. The Board is encouraged by the NYC DOT's acceptance of the GMATS recommendations with regard to navigation technology. However, the full integration of the advantages of technology into navigation practices and system monitoring requires careful evaluation and thorough review. The GMATS assessment indicated that navigation technology should be fully operable at all times and that navigation personnel should receive initial and then periodic training in the effective use of navigation technology. The Board agrees with this assessment. Board discussions with NYC DOT personnel, however, indicate that neither the alarm functions related to speed indicators nor the prerecorded announcements will be automatic, but rather, will required manual activation. In the Board's opinion, manual activation is not consistent with the GMATS recommendations.

The GMATS assessment did not call for the type of systematic evaluation that regularly assesses the effectiveness of existing navigation technology in light of new technologies that become available. The Safety Board believes that regular technological assessment would help ensure that NYC DOT vessels take maximum advantage of available technology to enhance the safety of ferry operations.

In light of the issues discussed above, the National Transportation Safety Board makes the following safety recommendations to the New York City Department of Transportation:

> Require your licensed pilots to provide proof of compliance with the Coast Guard medical certification requirements. (M-05-01)
>
> Adhere to your October 2005 target for implementation of a comprehensive safety management system, incorporating all matters recommended by the Global Maritime and Transportation School assessment, and ensuring medical fitness oversight (requiring, minimally, assurance of compliance with Coast Guard requirements). (M-05-02)
>
> As part of your response to the Global Maritime and Transportation School assessment, fully comply with the technology-related recommendations of the Global Maritime and Transportation School, and establish a recurrent evaluation process to assess the use of navigation technology. (M-05-03)

As a result of its investigation of the *Andrew J. Barberi* accident, the Safety Board has also issued safety recommendations to the U.S. Coast Guard, the States and territories that operate public ferries, and the Passenger Vessel Association. The 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 this letter, please refer to M-05-01 through -03. 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 these recommendations.

[original signed]

By: Ellen Engleman Conners
Chairman