National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: March 18, 2005

In reply refer to: M-05-04 through -06

Admiral Thomas H. Collins
Commandant
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Washington, D.C. 20593-0001

About 1520 on October 15, 2003, the Staten Island Ferry *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 when it allided at full speed with a maintenance pier at the St. George ferry terminal. Fifteen crewmembers and an estimated 1,500 passengers were 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.[1]

The National Transportation Safety Board (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 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.

To determine whether the assistant captain's incapacitation had a medical explanation, the Safety Board studied his sleep, work, and medical history, including the results of medical evaluations required by the U.S. Coast Guard. The Board's review of the records maintained by the assistant captain's personal physician and his pharmacy revealed medical conditions and medications that should have called into question the assistant captain's ability to safely pilot a vessel. However, none of the medical evaluation forms submitted by the assistant captain and his physician to the Coast Guard

[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>.

listed such conditions and medications. All the forms the Board examined (from 1986, 1989, 1995, and 2000) falsely indicated that the assistant captain was not taking any prescribed medications and had no medical condition that required the use of medication, with the last form indicating that he had "no significant medical history." The Board concluded that because of this false information, the Coast Guard had no opportunity to evaluate the assistant captain's medical fitness to maintain his mariner's license. The Board was unable to determine whether any medical factor, such as the assistant captain's regular use of the prescription medication tramadol, accounted for his failure to respond to clear indications of the impending allision.

The Safety Board previously recommended that various Federal agencies take actions to address issues pertaining to the use of licit medications by vehicle operators. The Board recommended that the U.S. Department of Transportation (DOT) work with the Federal Motor Carrier Safety Administration, the Federal Railroad Administration, the Federal Transit Administration, and the Coast Guard to obtain more comprehensive data on the nature and extent of the role of medication in fatal surface mode accidents; that the DOT establish a list of approved medications or classes of medications that may be used safety when operating a vehicle, and expressly prohibit the use of any medication not on that list except in certain situations; and that the DOT evaluate the applicability of similar restrictions for transportation employees in all safety-sensitive positions.[2] The Board specifically requested the Coast Guard to publish general guidance on the use of licit drugs by mariners.[3] At a meeting with the Board on September 9, 2004, the Coast Guard agreed to take action and said that it will provide the Board with a formal response when the action is complete.

The Safety Board's investigation of the *Andrew J. Barberi* accident identified weaknesses in the Coast Guard's medical oversight of mariners. The Board concluded that the weaknesses were unrelated to the accident, but believes that they represent opportunities for the Coast Guard to improve its medical oversight system:

- Although Coast Guard regulations at Title 46 *Code of Federal Regulations* (CFR), Part 10, Section 709, require licensed pilots to undergo an annual physical examination, the Coast Guard does not provide guidance on acceptable methods of meeting the requirement. Nor does it require pilots to report the results of their annual medical appraisal to either the Coast Guard or their employer. The only requirement is that pilots make the results of their most recent physical examination available to the Coast Guard "upon request."

- The Coast Guard does not require mariners to report changes in medical condition between examinations, despite the possibility that in the intervals between examinations, a mariner could experience new medical

[2] Safety Recommendations I-00-1 through I-00-4 (letter to Secretary, U.S. Department of Transportation, from Chairman, National Transportation Safety Board, January 13, 2000).

[3] Safety Recommendations M-00-2 and M-00-3 (appendix C of letter to Secretary, U.S. Department of Transportation, from Chairman, National Transportation Safety Board, January 13, 2000).

symptoms, take new medications, or be hospitalized. The Coast Guard publishes an extensive list of disqualifying conditions in its "Physical Evaluation Guidelines for Merchant Mariner's Documents and Licenses" (Navigation and Inspection Circular No. 2-98), including conditions that pose a risk of incapacitation or debilitating complication or that require medication impairing judgment or reaction time. The Coast Guard, however, has no formal mechanism for being informed about a mariner who has a disqualifying physical condition.

- The Coast Guard's system of storing medical data does not track whether all required examinations are performed, nor, as noted above, does the Coast Guard require all such records to be submitted. Thus, the Coast Guard could not tell the Safety Board whether the assistant captain of the *Andrew J. Barberi* had had his required annual medical examination the year before the accident. The Safety Board determined that the Coast Guard had not asked any Staten Island Ferry captain or assistant captain for proof of the required annual medical evaluation in the 12 months before the accident.

- The Coast Guard's medical data storage system does not allow the Coast Guard to study trends in evaluation results, differences between physicians who perform the evaluations, or inconsistencies in Coast Guard reviews of the medical evaluation forms. Thus, the Coast Guard cannot ascertain whether certain physicians do not perform the evaluations properly and therefore should not be allowed to assess mariners' medical fitness. Further, the Safety Board found that headquarters Coast Guard personnel overseeing the medical evaluation process knew little about the quality of regional reviews of medical evaluations. Because the Coast Guard leaves the certification of mariners to regional evaluation centers that have widely varying standards, the Board is concerned that an individual such as the assistant captain, with multiple medication use and multiple medical conditions, might receive certification even if accurate information was provided on the medical evaluation form.

- The Coast Guard has only limited ability to review the medical evaluations made by personal health care providers. The senior medical officer, the final authority in the mariner medical oversight process, had no formal training in occupational medicine and told Safety Board investigators that he relied on a mariner's health care provider for guidance on whether a mariner was able to perform his or her job.

Having identified serious deficiencies in the safety of the Staten Island Ferry operations, the Safety Board is concerned about the risk to passengers posed by the absence of requirements for an aggressive safety management system on domestic passenger ferries nationwide. Despite the size of the U.S. ferry industry and the capacity of individual vessels to carry thousands of passengers on a single voyage, current Coast Guard regulations stipulate that rules pertaining to safety management systems apply

only to ferry operators that operate internationally or that have voluntarily adopted safety management systems. Thus, the Staten Island ferries were not required to have a safety management system, and ferry management had not voluntarily instituted such a system at the time of the accident.

Since the accident, and after an assessment by the Global Maritime and Transportation School, the New York City Department of Transportation has indicated to the Safety Board that it is implementing a safety management system and expects to receive a Document of Compliance by December 2005. The Board is concerned, however, that the absence of safety management systems on other ferries that carry thousands of passengers daily on U.S. waterways could result in the type of safety-deficient operation found in the Staten Island ferries. The Board notes that the Coast Guard has expressed its support for the development of safety management systems on domestic vessels, stating that "the use of safety management systems by all U.S. commercial vessels would result in significant benefits."[4] With the proper legislative authority, the Coast Guard could mandate that all U.S.-flag passenger ferries implement a safety management system. By enforcing such a requirement, the Coast Guard could ensure that U.S. ferries that operate on domestic routes maintain the same high standards of safety that the Coast Guard requires of U.S. oceangoing vessels.

In light of the issues discussed above, the National Transportation Safety Board makes the following safety recommendations to the U.S. Coast Guard:

> Revise regulation 46 CFR 10.709 to require that the results of all physical examinations be reported to the Coast Guard, and provide guidance to mariners, employers, and mariner medical examiners on the specific actions required to comply with these regulations. (M-05-04)
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> In formal consultation with experts in the field of occupational medicine, review your medical oversight process and take actions to address, at a minimum, the lack of tracking of performed examinations; the potential for inconsistent interpretations and evaluations between medical practitioners; deficiencies in the system of storing medical data; the absence of requirements for mariners or others to report changes in medical condition between examinations; and the limited ability of the Coast Guard to review medical evaluations made by personal health care providers. (M-05-05)
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> Seek legislative authority to require all U.S.-flag ferry operators to implement safety management systems, and once obtained, require all U.S.-flag ferry operators to do so. (M-05-06)

As a result of its investigation of the *Andrew J. Barberi* accident, the Board has also issued safety recommendations to the New York City Department of Transportation, the States and territories that operate public ferries, and the Passenger Vessel Association.

[4] *Federal Register*, vol. 62, no. 247 (December 24, 1997), p. 67503.

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, please refer to M-05-04 through -06. 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