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National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: July 23, 1998

In reply refer to: M-98-117 through -119

Mr. Douglas Eklof
President
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On Friday afternoon, January 19, 1996, the U.S. tug *Scandia* had an engineroom fire while towing the unmanned U.S. tank barge *North Cape*, 4.5 miles off Point Judith, Rhode Island. All six crewmembers abandoned the *Scandia* amid 10-foot waves and 25-knot winds; however, no one was injured. The crew was unsuccessful in its attempts to release the anchor of the barge, which ran aground and spilled 828,000 gallons of home heating oil, causing the largest pollution incident in Rhode Island's history, an incident that led to the closing of local fisheries. [1]

The National Transportation Safety Board determines that the probable cause of the fire damage aboard the tug *Scandia* and the subsequent grounding of and pollution from the barge *North Cape* was the EMC's inadequate oversight of maintenance and operations aboard those vessels, which permitted a fire of unknown origin to become catastrophic and eliminated any realistic possibility of arresting the subsequent drift and grounding of the barge. Contributing to the accident was the lack of adequate U.S. Coast Guard and industry standards addressing towing vessel safety.

After reviewing the *Scandia*'s discrepancy reports, interviewing EMC operations department personnel responsible for the oversight of vessel maintenance, and evaluating the implementation of the EMC's vessel inspection program (VIP), the Safety Board determined that the EMC's management oversight of vessel maintenance was poor, which resulted in reducing the safety of its vessels.

The VIP formed the cornerstone of the EMC's program of having its management oversee vessel maintenance. However, the Safety Board found that although the EMC had a VIP on paper, the EMC did not implement the VIP in practice, as evidenced by the discrepancy

[1] For more information, read Marine Accident Report—*Fire Aboard the Tug* Scandia *and the Subsequent Grounding of the Tug and the Tankbarge* North Cape *on Moonstone Beach, South Kingston, Rhode Island, on January 19, 1996* (NTSB/MAR-98/03)

reports. Had the EMC followed its VIP, there would not have been the numerous instances of extended delays in repairing safety and maintenance items because the program required that serious safety deficiencies be repaired within about 2 weeks. Instead, safety and maintenance problems were not corrected for months, sometimes for more than a year.

Significant delays in making repairs, as evidenced by the crew's repeated complaints on their monthly discrepancy reports, demonstrate that the EMC's management did not oversee the maintenance process and did not have controls to ensure that repairs were done in a timely enough manner to comply with the EMC's own procedures.

Because the EMC, by policy, did not keep maintenance or repair records, the operations department did not have a database with which to track the *Scandia*'s history of repairs and maintenance. Without such a history, maintenance managers could not monitor trends in failure rates of the *Scandia*'s equipment and could not make informed decisions about the vessel's need for preventative maintenance. The result was poor maintenance of the *Scandia* and repeated complaints from its captains.

Not only did the absence of a planned maintenance program result in the *Scandia* being poorly maintained, the absence probably affected the maintenance of the entire EMC fleet. The EMC's process for exercising vessel maintenance (the VIP) was applied to all vessels in the EMC fleet and was enforced by the same personnel at the EMC.

The EMC's poor oversight of maintenance resulted in a reduction of the *Scandia*'s safety. Some of the discrepancies, such as missing safety guards, required relatively minor effort to fix; consequently, they should have been expeditiously repaired by vessel crewmen. By allowing the vessel's fire pump to corrode to the point of developing holes the size of a quarter, by permitting fire hoses with mismatched hose threads, and by sealing off emergency escape hatches, the EMC rendered these key safety features ineffective.

Because the engineroom smoke described in the discrepancy report for June 1995 was severe enough to have been seen by passing vessels, the smoke was likely to have discouraged the *Scandia*'s crewmembers from effectively monitoring the proper functioning of engineroom equipment during their engineroom tours. In addition to being an obvious safety hazard for the *Scandia*, the severe smoke also posed a health hazard for its crew.

The Safety Board, therefore, concludes that the EMC's oversight of vessel maintenance for its fleet was inadequate and that the implementation of its VIP was ineffective. The Safety Board believes that the EMC should develop and implement an effective management oversight program that provides maintenance managers with enough information to track maintenance trends and to make informed maintenance decisions that will ensure the safety of the company's fleet and crews.

The Safety Board analyzed the captain's vessel operations in light of the predicted weather and the actual on-scene weather and found that although a winter storm was rapidly approaching, the captain continued to proceed into the open seas of the Race, thus reducing his margin of safety for avoiding the storm. Further, the captain did not reassess his decision to

continue his voyage beyond the sheltered waters of Long Island Sound to the Race, and neither he nor the EMC had any plan to consider alternatives in case the vessel was endangered by the storm.

This investigation shows that the EMC had no procedures that would enable the crew to assess weather-related voyage risks or require the captain to obtain updated weather information or require the captain to consult the EMC's shoreside management about the risk of continuing the voyage under the prevailing weather conditions.

The captain and the EMC's shoreside management did not consult about continuing the voyage from Long Island Sound into the Race. Had the EMC's management helped the captain to identify the risks, alternative courses of action could have resulted. An example of an alternative would have been the captain seeking safe harbor while the *Scandia* was sailing in the sheltered lee of Long Island Sound before proceeding into the exposed waters of the Race, where the vessel encountered rapidly worsening weather. The lack of an operable windlass may have deterred the captain from seeking shelter in the sound because once an anchor is dropped, it cannot be easily retrieved without a windlass. However, the need for a windlass in case the weather rapidly worsened should have been considered by the EMC through use of an equipment checklist as a part of voyage planning procedures.

Although the EMC left all weather-related decisions entirely to the captain, the Safety Board points out that current maritime safety management practices, such as those embodied in the International Safety Management Code, emphasize that responsibility for vessel safety cannot be limited to ship captains but must be shared by the upper levels of the company's shoreside management. Therefore, the Safety Board believes that the EMC should develop and implement procedures whereby designated management officials communicate with ship captains at sea in times of potential or actual emergencies and during safety-critical periods of a voyage. The procedures should be directed toward facilitating the making of timely decisions that affect the safety of company vessels and crews.

Voyage planning does more than improve the communications between a captain and his company's shoreside management; voyage planning can significantly improve a company's oversight of operations and its evaluation of weather-related risks, thereby reducing, at the planning stages of a voyage, the risk of an accident. The *Scandia* accident shows that EMC's inadequate oversight of vessel operations resulted in the *Scandia*'s lack of preparedness to encounter the predicted bad weather and contributed to the accident. For example, if the EMC had had a checklist to ensure that the loose equipment and material aboard the *Scandia* were secured in heavy weather, to ensure that flammable materials were not stored in the engineroom, and to ensure that the *North Cape* was adequately equipped for the anticipated weather, the crew might have thought through the process of preparing for heavy weather and taking the necessary precautions, thus significantly improving the safety of operations.

The Safety Board, therefore, concludes that because the EMC did not have adequate voyage planning procedures to ensure that adequate weather information and operational precautions were considered in its decisionmaking, the risk reduction measures that could have been taken before the voyage began were not taken. Consequently, the Safety Board believes that

the EMC should develop and implement voyage planning procedures and checklists for its towing vessels to ensure that adequate risk reduction measures are taken before starting a voyage, including an assessment of weather risks, of the adequacy of the vessel's equipment, and of operational precautions.

Therefore, the National Transportation Safety Board issues the following safety recommendations to Eklof Marine Corporation:

> Develop and implement an effective management oversight program that provides maintenance managers with enough information to track maintenance trends and to make informed maintenance decisions that will ensure the safety of the company's fleet and crews. (M-98-117)
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> Develop and implement procedures whereby designated management officials communicate with ship captains at sea in times of potential or actual emergencies and during safety-critical periods of a voyage. (M-98-118)
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> Develop and implement voyage planning procedures and checklists for your towing vessels to ensure that adequate risk reduction measures are taken before starting a voyage, including an assessment of weather risks, of the adequacy of the vessel's equipment, and of operational precautions. (M-98-119)

Also, the Safety Board issued Safety Recommendations M-98-103 through -116 to the U.S. Coast Guard and M-98-120 through -122 to the American Waterways Operators, Inc.

The National Transportation Safety Board is an independent Federal agency with the statutory responsibility "to promote transportation safety by conducting independent accident investigations and by formulating safety improvement recommendations" (Public Law 93-633). The Safety Board is vitally interested in any action taken as a result of its safety recommendations. Therefore, it would appreciate a response from you regarding action taken or contemplated with respect to the recommendations in this letter. Please refer to Safety Recommendations M-98-117 through -119 in your reply. If you need additional information, you may call (202) 314-6450.

Chairman HALL, Vice Chairman FRANCIS, and Members HAMMERSCHMIDT, GOGLIA, and BLACK concurred in these recommendations.

By: Jim Hall
Chairman