NATIONAL TRANSPORTATION SAFETY BOARD
Public Meeting of May 14, 2013
(Information subject to editing)

Marine Accident Report: Allision of the Cargo Vessel M/V *Delta Mariner* with Eggner's Ferry Bridge Tennessee River near Aurora, Kentucky January 26, 2012

NTSB/MAR-13/02

This is a synopsis from the National Transportation Safety Board's report and does not include the NTSB's rationale for the conclusions, probable cause, and safety recommendations. NTSB's staff is currently making final revisions to the report from which the attached conclusions and safety recommendations have been extracted. The final report and pertinent safety recommendation letters will be distributed to recommendation recipients as soon as possible. The attached information is subject to further review and editing.

EXECUTIVE SUMMARY

The M/V *Delta Mariner*, a cargo vessel carrying rocket components from the manufacturer in Decatur, Alabama, to Cape Canaveral, Florida, allided with Eggner's Ferry Bridge on the Tennessee River on the night of January 26, 2012, near Aurora, Kentucky. As the vessel approached the bridge, the bridge team maneuvered the *Delta Mariner* away from the main navigation span and toward a span providing insufficient clearance for the vessel.[1]

The National Transportation Safety Board (NTSB) launched an investigation to determine why the allision occurred and to identify measures to prevent the occurrence of a similar accident. The NTSB identified several safety issues during the investigation:

- Performance of the *Delta Mariner* bridge team and the contract pilot[2] hired to assist them, including passage planning, their understanding of their roles and responsibilities, and their use of navigation equipment.

- Effectiveness of the vessel's safety management system and safety oversight by Foss Maritime Company, the owner of the vessel.

- Maintenance of navigation lighting on Eggner's Ferry Bridge, overall responsibility for inspection and repair of Kentucky bridge navigation lighting, and the role of the

[1] For more detailed information on this report, visit http://www.ntsb.gov/investigations/dms.html and search for NTSB accident ID DCA12FM006.

[2] The owner of the *Delta Mariner* regularly hired experienced towing vessel masters to guide and assist the bridge team for the portion of its inland rivers route between Decatur, Alabama, and Baton Rouge, Louisiana. For the purposes of this report, these individuals are referred to as contract pilots. They were not federally or state-licensed pilots but held Coast Guard–issued master of towing vessel licenses.

US Coast Guard related to navigation lighting on bridges over inland waterways and broadcast warnings to mariners about potential navigation hazards.

Performance of bridge team and contract pilot. As the vessel approached Eggner's Ferry Bridge, the bridge team and contract pilot of the *Delta Mariner* were largely unaware of what lighting should have been visible on the bridge and which span allowed sufficient clearance for safe passage. The contract pilot and bridge team focused exclusively on the few lights visible on the bridge while ignoring readily available electronic charting system displays, which could have provided critical information about the vessel's position in relation to the bridge and the bridge's correct lighting scheme. Despite this lack of information, the contract pilot continued to direct the vessel toward a span that was too low for the *Delta Mariner*. Further, despite the contract pilot's apparent uncertainty, none of the bridge team challenged his directions.

Foss Maritime's safety management system and vessel management and oversight. The investigation revealed that the *Delta Mariner*'s safety management system, developed by the company more than 10 years earlier and in place at the time of the accident, was not effectively implemented. Overall, Foss Maritime provided ineffective oversight of the *Delta Mariner*'s operations. Due to the vessel's good safety record and the company's reliance on proactive safety measures and a crew of well-trained, experienced deep-sea mariners to provide a high level of safety, the company became complacent regarding the safety of the vessel's operations. The investigation also found the expertise required of contract pilots was not clearly defined, and contract pilots and the *Delta Mariner*'s deck officers lacked clear understanding of the guidance expected from contract pilots while serving on the bridge of a vessel.

Navigation lighting on Kentucky bridges. Given that Eggner's Ferry Bridge was not properly lighted on the night of the accident, the NTSB investigated maintenance of lighting on Kentucky bridges that cross navigable waterways. The investigation found the Kentucky Transportation Cabinet (KYTC), the owner of the bridge, failed to effectively maintain the bridge's lighting in accordance with the Coast Guard–approved lighting plan. The KYTC also did not identify and resolve recurring lighting problems and their causes. The NTSB found personnel in the division performing repairs relied on inadequate knowledge of the correct lighting configuration and KYTC's oversight of its bridge navigation lighting maintenance was ineffective.

Coast Guard Bridge Administration oversight. The NTSB found the Coast Guard failed to identify recurring bridge lighting problems, and its process for verifying the resolution of bridge lighting problems was inadequate. The NTSB also determined the Coast Guard should consider more easily accessible means for warning mariners of potential hazards than its current broadcasts to mariners over VHF radio.

Earlier in the investigation, due to the potential danger presented by inadequate bridge navigation lighting, the NTSB issued two recommendations to the commonwealth of Kentucky in April 2012. These recommendations addressed KYTC's responsibility for verifying the status and proper operation of navigation lighting on all Kentucky bridges over navigable waters and the need to develop inspection and maintenance procedures to ensure such lighting functions reliably. The NTSB determined that measures taken by the commonwealth and KYTC in response to recommendations by the NTSB addressed the issues satisfactorily and classified these recommendations "Closed—Acceptable Action" in November 2012.

As a result of the investigation, the NTSB issues additional safety recommendations to the Coast Guard concerning chronic bridge navigation lighting problems and the effectiveness of broadcast notices to mariners in alerting vessel bridge teams to potential hazards. The NTSB also recommends Foss Maritime Company address concerns regarding the expertise expected of contract pilots, the duties and responsibilities of the bridge team, and passage planning for the *Delta Mariner*. The NTSB further recommends the Federal Highway Administration alert state department of transportation bridge maintenance divisions to the circumstances of this allision and their responsibility to maintain bridge navigation lighting in accordance with Coast Guard regulations.

FINDINGS

1. None of the following were found to be factors in the accident: the use of alcohol or illegal drugs, the mechanical condition of the *Delta Mariner* or its propulsion systems, and distraction from the use of cell phones or other electronic devices.

2. At the time of the accident, most of the navigation lights on Eggner's Ferry Bridge were extinguished, including the lights marking the main navigation span, which was the intended route of the vessel.

3. The majority of the white lights marking the center of the main navigation span had been extinguished for at least a year prior to the accident and likely for several years.

4. The Kentucky Transportation Cabinet failed to effectively maintain proper navigation lighting on Eggner's Ferry Bridge as required and resolve recurring lighting problems and their causes.

5. The contract pilot's exclusive focus on the only bridge navigation lights that were illuminated caused him to direct the vessel toward span E, which had insufficient clearance for the *Delta Mariner*.

6. The passage plan provided inadequate information for safe navigation on the inland waters portion of the intended journey.

7. The bridge team overly relied on the direction of the contract pilot, despite his apparent uncertainty, which resulted in the bridge team attempting to maneuver the vessel under the incorrect span.

8. The contract pilot and the bridge team failed to effectively utilize all navigation tools, such as the electronic charting system and radar, as they approached Eggner's Ferry Bridge.

9. The *Delta Mariner*'s safety management system was not effectively implemented on board the vessel at the time of the accident.

10. Foss Maritime Company provided ineffective oversight of the safety of Delta Mariner operations.

11. The expertise, duties, and responsibilities of the *Delta Mariner* contract pilots were inadequately defined.

12. A lack of specific inspection procedures and attention to navigation light maintenance led to the ineffective oversight of bridge navigation lighting maintenance in District 1 of the Kentucky Transportation Cabinet.

13. The Coast Guard's oversight for Eggner's Ferry Bridge failed to identify recurring problems with the bridge lighting system as well as the inaccuracy of the Kentucky Transportation Cabinet's reports that lighting problems had been repaired.

14. Traditional broadcast notices to mariners carried out over VHF radio may not be the most effective means for disseminating important navigation information.

Probable Cause

The National Transportation Safety Board determines the probable cause of the allision of the M/V *Delta Mariner* with Eggner's Ferry Bridge was the bridge team's exclusive reliance on the contract pilot's incorrect navigational direction as the vessel approached the bridge and their failure to use all available navigation tools to verify the safety of the vessel's course. Contributing to the accident was Foss Maritime Company's failure to exercise effective safety oversight of the *Delta Mariner*'s operations and the failure of the Kentucky Transportation Cabinet to effectively maintain bridge navigation lighting.

RECOMMENDATIONS

As a result of this investigation, the National Transportation Safety Board makes new recommendations to the US Coast Guard, the Federal Highway Administration and Foss Maritime Company.

The National Transportation Safety Board previously issued recommendations to the Commonwealth of Kentucky.

New Recommendations

To the US Coast Guard:

1. Develop procedures to identify bridges having chronic navigation lighting problems and work with the states that own those bridges to rectify underlying problems in a timely manner. (M-13-07)
2. Review the process and means of delivering broadcast notices to mariners and identify and implement methods for providing timely and easily accessible navigation information to mariners. (M-13-08)

To the Federal Highway Administration:

3. Alert state department of transportation bridge maintenance divisions to the circumstances of this allision and their responsibility to maintain bridge navigation lighting in accordance with US Coast Guard regulations. (M-13-09)

To Foss Maritime Company:

4. Develop a detailed passage plan for the inland waters portion of the *Delta Mariner*'s voyage to include specific information about all known risks and ensure the plan is understood and effectively used by bridge teams during transits. (M-13-10)
5. Clearly define the route expertise expected of *Delta Mariner* contract pilots and provide them and deck officers with specific guidance regarding the contract pilots' duties and responsibilities and the type of guidance expected of them while serving on the bridge of a vessel. (M-13-11)

Previously Issued Recommendations

To the Commonwealth of Kentucky:

Verify the status and proper operation of navigation lighting on all Kentucky bridges over navigable waters in accordance with US Coast Guard–approved lighting plans. (M-12-4) (Closed – Acceptable Action)

Develop inspection and maintenance procedures so that bridge lighting functions reliably and is maintained in accordance with US Coast Guard–approved lighting plans. Train Kentucky Transportation Cabinet personnel in these procedures. (M-12-5) (Closed – Acceptable Action)