

Log M-43

NATIONAL TRANSPORTATION SAFETY BOARD  
WASHINGTON, D.C.

ISSUED: December 18, 1984

Forwarded to:

Mr. William N. Johnson  
Chairman and President  
American Bureau of Shipping  
65 Broadway  
New York, New York 10006

SAFETY RECOMMENDATION(S)

M-84-43

About 1530 P.d.t. on October 27, 1983, the U.S. ocean towing vessel EAGLE, with two barges in tow, was proceeding on a southeasterly course en route from Anchorage, Alaska, to Seattle, Washington. When the EAGLE was about 25 miles west-southwest of Cape Fairweather, Alaska, it suddenly heeled about 50° to starboard and sank within a few minutes. At the time, a severe storm was sweeping through the area, and the vessel and tow were encountering 50- to 60-knot winds and 25- to 35-foot seas from the southeast. Of the nine persons on board the EAGLE, only one person survived. The estimated value of the EAGLE was \$2 million. 1/

The suddenness of the 50° heel to starboard experienced by the EAGLE about 1530 on October 27 strongly indicates that the tug was tripped by its towing hawser tending sharply to starboard, and suggests that the fairlead system which guided the towing hawser over the stern of the vessel failed in some manner, allowing the direction of the tension force exerted by the towing hawser to be transferred from astern to starboard. The fact that the vessel continued to heel, although a few times it appeared that the vessel might right itself, suggests that the towing hawser continued to exert a continuous overturning force on the vessel's starboard side.

A failure of the holddown device would have allowed the towing hawser to come out of the towing pins. Failures of holddown devices are not uncommon on U.S. ocean towing vessels. In the case of the EAGLE, the padeyes connecting the holddown device to the deck had failed on several occasions and stronger padeyes had been installed. Installation of stronger padeyes should have reduced the possibility of future failures; however, deck fittings could have failed due to improper welding, metal fatigue, and high stress. Also, other parts of the holddown device, such as the chain, shackles, and roller, were subjected to stress and fatigue and, therefore, could have failed. The seas at the time of the accident, which frequently reached 50 feet in height, could have caused the vessel to pitch considerably, occasionally lowering the vessel's stern sufficiently to place a very high stress on the holddown device. A steering failure caused by a loss of electrical power or a failure of the steering gear itself could have caused the vessel to

1/ Marine Accident Report—"Capsizing and Sinking of the U.S. Ocean Towing Vessel M/V Eagle in the Gulf of Alaska, October 27, 1983" (NTSB/MAR-84-07).

yaw excessively, thereby placing a severe stress on the holddown device. The highest stress on the holddown device probably would have occurred if the vessel had yawed excessively while simultaneously rolling. Had the holddown device failed at such a time, the towing hawser almost instantly would have transmitted a strong overturning force and the vessel would have heeled severely or capsized.

A failure of one or both towing pins to remain upright would have resulted in very high stress being placed on the holddown device as the vessel yawed, which probably would have caused some part of the device to break. Because the pneumatic rams which raised and lowered the pins were not designed to keep the pins upright under conditions of loading that the towing hawser might impart, it was essential that the brace or locking bar be securely fastened. A failure to properly fasten the brace, such as a failure to install the cotter key or bolt, could have resulted in the brace becoming disabled, thereby allowing the pin to be depressed by the towing hawser in the event the vessel yawed excessively.

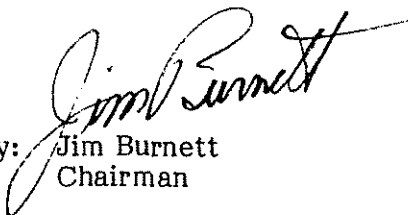
Once the tension of the towing hawser shifted from astern to starboard, it would have been essential for the navigation watch in the pilothouse to release immediately the brake on the towing winch to allow the towing hawser to run out. However, this would not have been an easy task to accomplish during a severe storm and with the vessel being heeled to 50° or more. Once the vessel was heeled beyond 50,° it would have been exceptionally difficult for the crew to reach the winch controls, and such a heel would have made operation of the mechanical override nearly impossible. If the EAGLE had been equipped with the capability to release the brake on the towing winch remotely from the pilothouse, at the first indication of a serious heel, tension on the towing hawser could have been released immediately.

The EAGLE was an uninspected vessel, but it was built in accordance with American Bureau of Shipping (ABS) rules; however, the ABS has no standards for towing systems and towing equipment installed on ocean towing vessels. If recognized standards were available, it would be possible for operators of ocean towing vessels to refer to them in order to insure that all components of the towing system, including such items as the towing pins and holddown device, are adequate. Proper engineering design could have provided a workable fairlead system capable of withstanding the rigorous conditions encountered in the Gulf of Alaska. The Safety Board believes that the U.S. Coast Guard and the ABS jointly should develop standards for towing systems and towing equipment on ocean towing vessels.

As a result of its investigation, the National Transportation Safety Board recommends that the American Bureau of Shipping:

In conjunction with the U.S. Coast Guard, develop standards for towing systems on all ocean towing vessels, including the means used to lead and restrain the towing hawser over the stern of the vessel and the means for releasing the brake on towing winches remotely from the pilothouse and each steering station, and publish these standards as classification rules.  
(Class II, Priority Action) (M-84-43)

BURNETT, Chairman, GOLDMAN, Vice Chairman, and BURSLEY, Member, concurred in this recommendation.

By:   
Jim Burnett  
Chairman