

MARINE INVESTIGATION REPORT

M97M0141

FALL FROM PILOT LADDER

BULK CARRIER "ATLANTIC ERIE"

SYDNEY, NOVA SCOTIA

03 NOVEMBER 1997

The Transportation Safety Board of Canada (TSB) investigated this occurrence for the purpose of advancing transportation safety. It is not the function of the Board to assign fault or determine civil or criminal liability.

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Summary

While the pilot was disembarking off Sydney, during the hours of darkness and in inclement weather, a sudden movement of the pilot ladder caused the pilot to lose his grip on the ladder and fall onto the deck of the pilot boat, landing heavily and sustaining injuries.

Ce rapport est également disponible en français.

Other Factual Information

	"ATLANTIC ERIE"
Port of Registry	Halifax, Nova Scotia
Flag	Canada
Official Number	800436
Type	Bulk Carrier, Self-Unloader
Gross Tons	24,300
Length	224.5 m
Draught (at time of incident)	Forward: 25 ft 7 in Aft: 26 ft
Built	1985, Collingwood, Ontario
Propulsion	One 8165 kW (11,100 brake horsepower) Sulzer diesel engine
Crew	25
Owners	Canada Steamship Lines Inc., Montréal, Quebec

General Information

As the "ATLANTIC ERIE" was outbound from Little Narrows, Nova Scotia, on the afternoon of 03 November 1997, there was a heavy northeasterly swell off Sydney at the normal pilot boarding/disembarking station, and it was decided to seek a more sheltered area in which to disembark the pilot. The location selected was just outside the inner fairway buoy.

The deck watch officer supervised the rigging of the pilot ladder. At approximately 1930 Atlantic standard time¹ the vessel was slowed to a minimum speed and the pilot ladder was lowered over the port side and apparently secured. Before stepping onto the ladder, the pilot received confirmation from the first mate that the ladder was ready for use. The pilot had boarded the vessel off Sydney on November 1, on her inbound passage, to conduct the vessel into Little Narrows and, on reaching the main deck, had complained verbally to the first mate about the condition of the pilot ladder, suggesting that it was time for a new ladder.

With the pilot boat alongside and under the pilot ladder, the pilot, wearing suitable shoes and light gloves, stepped through the access opening in the ship's side rail and, while holding on to the upper hand rail, moved his feet onto the ladder step at the deck edge, using his weight to test for any slackness in the ladder. Satisfied that the ladder seemed secure, he transferred one foot and one hand at a time from the ship to the ladder.

¹ All times are Atlantic standard time (coordinated universal time minus four hours).

Reportedly, and bearing in mind that he considered the ladder to be in poor condition, he tended to be extra cautious.

When his full weight was on the ladder and he had released his hand hold on the ship's side rail to grasp the ladder "bolt" (side) ropes, and after moving one more step in the same fashion as previously, the ladder seemed to give way. The ladder dropped a short distance and then fetched up, jolting the pilot's hands loose from the bolt ropes. The pilot fell off the ladder and onto the deck of the pilot boat, a fall of approximately 3.6 m (12 ft), sustaining injuries to his legs and suffering a blow to the head. The injuries to his legs included bruising, a severely strained ankle, and broken bones in his left foot; he was treated at a local hospital. Subsequent medical examinations revealed serious and substantial damage to the left leg and ankle. The pilot is permanently unable to return to work as a pilot and is medically unable to return to sea in command of a vessel.

Rigging of the Pilot Ladder

The ladder, which had been originally rigged on the starboard side, had been moved to the port side and made fast over the ship's side rail in a conventional manner. In this area, the "ATLANTIC ERIE" has two doubling plates in the side plating. The top of the uppermost doubling plate is at deck level, with the top of the lower one approximately 7.6 cm (3 in) below the bottom of the upper one. The pilot reported that, as the ladder dropped, he was aware of the slapping of the ladder steps over the doubling plates. The master of the "ATLANTIC ERIE" suggested that the ladder may have been slippery due to wet conditions caused by drizzle and sea spray, and that he believed the ladder dropped approximately 0.3 m (1 ft) just before the pilot fell. The pilot boat, when alongside, took the last three or four steps of the ladder onto the deck.

Canadian-registered vessels are governed by Canadian legislation, including the *Canada Shipping Act*, and the regulations made thereunder, particularly, in the case of pilot ladders, by the *Pilot Ladder Regulations*, which require that:

Every ship shall be equipped with a pilot ladder that is [. . .] kept clean; and [. . .] maintained in good order and condition [. . . and] every pilot ladder shall be secured so that [. . .] each step rests firmly against the ship's side [. . .]." [Further,] every step of a pilot ladder shall [. . .] be secured in such a manner that it remains horizontal [. . . and every step shall] have an efficient non-slip surface [. . .]. Every pilot ladder shall have [. . .] two man-ropes that are properly secured to the ship and [. . .] battens shall be fitted to the pilot ladder so that [. . .] the lowest batten is attached in line with the fifth step from the bottom. The rigging of the pilot ladder and the embarkation and disembarkation of a pilot shall be supervised by a deck watch officer or other responsible officer of the ship.

Man-ropes had not been provided nor had they been requested, and the pilot indicated that he would not have used them. Man-ropes are optional under the International Maritime Organization (IMO) requirements for boarding arrangements for pilots, and the recommendations of the International Maritime Pilots' Association (IMPA) which are in accordance with IMO. The Halifax pilots' committee on pilot ladder safety suggests that, in rough conditions, an approved pilot ladder be rigged from the main deck with no man-ropes.²

² The Committee was set up to address the safety of the Atlantic Pilotage Authority pilots, in general, and the conditions encountered off Halifax, in particular.

The vessel had one pilot ladder and four inspection certificates pertaining to a “pilot ladder” aboard; none of the certificates identified a particular pilot ladder. One certificate, issued in 1995, showed that the rope ladder delivered to the ship met the 1974 *International Convention for Safety of Life at Sea* (SOLAS) requirements. However, since the pilot ladder was not tagged, nor is such identification required, it is not known if this was the same ladder as the one used on this occasion. At Little Narrows, the vessel loaded a cargo of gypsum, during which time the pilot ladder was reportedly stowed, uncovered, and rolled up at or near the outboard side of the ship.

Post-Occurrence Inspection of the Pilot Ladder

Observations of the pilot ladder following the occurrence included the following:

- The side ropes, the steps, and the batten of the pilot ladder were in a satisfactory condition.
- The steps of the pilot ladder were at various angles such that the ladder did not provide consistently horizontal surfaces.
- The lowest batten on the ladder was in line with the ninth step from the bottom.

Medical Examination

The pilot is licensed by the Atlantic Pilotage Authority. The *Atlantic Pilotage Authority Regulations* require that a medical examination be conducted at intervals of not more than twelve months. The pilot who was on the “ATLANTIC ERIE” was approximately eight months late in undergoing his annual medical examination. While the interval between medical examinations exceeded the period stated in the *Atlantic Pilotage Authority Regulations*, there was nothing to indicate that the pilot was in anything but good health at the time of the occurrence. He is, however, now unable to carry out his pilotage duties due to the injuries sustained in his fall from the pilot ladder.

Accidents Involving Pilots

TSB statistics indicate that, since 1978, 19 recorded occurrences involved injuries to pilots. Of these occurrences, six were classified as “reportable accident[s] aboard ship”, and three of those involved fatalities. Three quarters of the 19 occurrences involved embarking or disembarking. Considering the yearly average of more than 50 000 pilotage assignments, the occurrence rate is less than one per 100 000 embarkments or disembarkments.

Analysis

The sequence of events that occurred as the pilot's weight was taken by the pilot ladder is consistent with an upper step of the ladder having been hung up on the shell plating. It is likely that, when the ladder was rigged, it was secured with one of the steps bearing on the upper edge of a doubling plate. However, this was observed neither by the deck watch officer at the time of the rigging nor by the pilot before its use. The weight and movement of the pilot dislodged the step, allowing the ladder to drop until the slack and the weight was taken by the side ropes. A ladder that has been properly rigged and secured would not be subject to a re-adjusting drop when weight is applied to it, and wet conditions would not be a contributing factor.

There is conflicting information regarding the rigging of the ladder and the amount of slippage as the pilot descended. The ship's staff reported that the steps could not have slipped more than about one foot, and they were conscious of the ladder running out. The pilot reported hearing the slopping of the treads as they released. The ship's staff report the ladder to have been made fast on the rail and normally the ropes at the top of the ladder are used for this purpose. The pilot reported seeing the standing part of the ladder lying on the deck, which could not be normal if the top ropes were used to secure the ladder on the rail.

With the vessel at a loaded draught of 26 ft and a moulded depth of 50 ft, the freeboard would be about 24 ft. This, combined with a pilot boat freeboard of about 4 ft, would give a net length of ladder of approximately 20 ft. Having progressed about 7 to 8 ft below the main deck, the fall would have been about 12 ft.

Man-ropes had not been rigged, and they are not always the preferred handgrip of persons using a rope ladder because they allow the body to move away from the surface against which the ladder is leaned. The use of man-ropes is a contentious issue among pilots; while some prefer their use, others do not. At pilot boarding stations which are exposed to sea swell, and particularly in adverse weather conditions, the use of man-ropes could enhance safety. On the other hand, man-ropes tend to blow and flap loosely across the ladder with the wind and could become fouled on the ladder fittings or the pilot boat. Since the pilot indicated that he did not require the use of man-ropes, they were not made available but they would have been rigged had the pilot so desired.

The stowage of the ladder during loading operations subjected it to gypsum dust, although this is not considered to have been a factor in this occurrence. The location of the lowest batten indicates that the construction of the pilot ladder was not in accordance with regulatory guidelines. However, this is not considered to have been a contributing factor in this occurrence.

Findings

1. Apparently the pilot ladder had been secured without ensuring that it had been properly ranged down the ship's side.

2. Supervision of the rigging of the pilot ladder by the deck watch officer did not detect the slack in the upper part of the pilot ladder nor was it detected by the pilot before its use.
3. Man-ropes had not been rigged and were not specifically requested by the pilot. The pilot's preferred option was not to use the man-ropes.
4. The pilot ladder in use did not meet the regulatory requirements and the steps of the pilot ladder were secured such that they did not provide consistently horizontal surfaces.
5. Although the pilot considered the condition of the pilot ladder to be poor on the inbound trip, he did not indicate his reluctance to use the same ladder on the outward trip.

Causes and Contributing Factors

The pilot ladder had not been properly rigged or secured to allow a safe disembarking. Slack, in the upper part of the ladder, above the step on which the pilot stood, allowed the ladder to slip, drop, and suddenly fetch up, jolting the pilot's grip loose from the side ropes, causing him to fall to the deck of the pilot boat below. Contributing to the occurrence was the fact that the supervision of the rigging and securing of the pilot ladder by the deck watch officer and observations of the ladder by the pilot before its use did not detect improper rigging of the pilot ladder.

Safety Action

As result of this occurrence, the owner of the vessel has taken the following actions:

- The pilot boarding area was moved to midships.
- A chafing bar was installed at the sheer strake.
- Steel lug support brackets have been installed to facilitate four-point ladder fastening.
- The ship's pilot ladders have been replaced with ladders of better quality.

This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board authorized the release of this report on 26 April 2000.

Appendix A - Photographs

The pilot ladder that was used to disembark the pilot at Sydney 03 November 1997.



LOWER SECTION OF PILOT LADDER WITH THREE BOTTOM STEPS OF HARD RUBBER OF COMPARABLE STRENGTH OF HARDWOOD. NOTE STEPS AT VARIOUS ANGLES DUE TO SLACK CRIMPING. THE LOWEST BATTEN IS AT THE NINTH STEP INSTEAD OF FIFTH.



UPPER SECTION OF LADDER WITH STEPS AT VARIOUS ANGLES.