

MARINE OCCURRENCE REPORT

LOSS OF LIFE OF A CREW MEMBER

**ON BOARD "CSL ATLAS"
BELLEDUNE, NEW BRUNSWICK
08 JANUARY 1996**

REPORT NUMBER M96M0002

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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Loss of life of a crew member on board
"CSL ATLAS" at Belledune, N.B.
on 08 January 1996

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Summary

While working in No. 2 cargo hold of the self-unloading bulk carrier "CSL ATLAS" at Belledune, N.B., on 08 January 1996, at approximately 0955, a seaman was overcome by a fall of fine coal. Treatment, before and while at hospital at Bathurst, was unsuccessful in restoring life to the injured man.

Ce rapport est également disponible en français.

¹ All times are ADT (Coordinated Universal Time Minus 3 Hours).

Other Factual Information

Particulars of the Vessel

Name:	"CSL ATLAS"
Port of Registry:	Nassau
Flag:	Bahamian
Official Number:	71599
Gross Tonnage:	41,173
Type:	Bulk Carrier (self unloader)
Built:	1990, at Verolme, Brazil
Propulsion:	6 cylinder Sulzer 11,995 kW.
Owner:	Canada Steamship Lines St. Catharines, Ontario

"CSL ATLAS" has five cargo holds beneath which are fore-and-aft tunnels containing three fore-and-aft cargo conveyor belts, with the middle belt above the centre line of the vessel. Crew accommodation and the navigating bridge are aft. Immediately forward of the accommodation block is the discharge boom which is fed by opening the gates at the bottom of the cargo holds and allowing the cargo to fall onto the conveyor belt/belts. Vibrators are fitted beneath the holds to shake loose any compacted cargo which has become rigid and non-flowing (hung-up) while in the cargo holds.

"CSL ATLAS", with a crew of 23 including the master, had arrived at Belledune on 05 January 1996 with cargo of 58,544 tonnes of steam coal consigned to the New Brunswick Power Corporation. As supplied by the shippers, some of the specifications of this cargo of steam coal are as follows, Moisture content: 11.30%, Top size: 5cm (2.0 inches) and Angle of repose: 37°.

During the days of 06 and 07 January, cargo had been discharged from No. 2 cargo hold, utilizing the three conveyor belts.

During the night of 07 January and early morning of 08 January, when the air temperature was -14°C to -17°C, a pile of coal, approximately 4.6 m (15 feet) to 5.5 m (18 feet) high was left above the centre belt. The coal pile extended from the forward bulkhead aft to hopper (gate) No. 7, which was one of 16 such gates. Despite the use of vibrators beneath the hold, the pile of coal remained immobile. At approximately 0900 on 08 January, two deck hands were instructed to activate the downward movement of the coal pile by poking and agitating it with poles approximately 2.5 m (8 feet) to 3 m (10 feet) in length.

The gates to the conveyor belts, as was normal in that operation, were closed while the men were working at the after face of the coal pile some of which, after being disturbed, slid into and filled No. 7 hopper. When the men were clear, No. 7 centre gate was opened and the coal in the hopper fell on to the centre line conveyor belt.

After No. 7 hopper was emptied, those gates were closed and then the two men, approximately 1.5 m (5 feet) apart, stood on the coal lying on top of No. 6 gates.

It had been previously agreed by these two seamen that if the face of the coal pile started to slide excessively, they would each turn and run before it. That plan was made with the understanding that one man, the deceased, would turn to port while the other man turned to starboard.

When the face of the coal pile started to slide, the deceased, instead of turning, stepped back and apparently tripped or stumbled. He fell on his back and was buried in the down-flowing coal. The other crew man, overtaken by a wave of coal, was trapped by his legs and partly immobilised.

The entire incident was witnessed by the officer of the watch (00W) who, by means of a remote control switch, stopped the discharge operation. Using a walkie-talkie radio, the 00W alerted the master and other officers regarding the accident, after which a rescue operation was then commenced.

The deceased, buried under the coal to a depth of approximately 1m, was located, dug out and lifted by stretcher to the main deck. Despite the best efforts of the crew, the ambulance attendants and the staff at the hospital, the man did not respond to treatment.

The deceased was classified as an able-bodied seaman and had been on this vessel since September 1995. He had served as a seaman since 1982 and was well experienced on self-unloaders and knowledgeable of their peculiarities. He was well rested prior to starting work on the morning of 08 January. Neither drugs nor alcohol were contributory factors.

According to the TSB data bank there have been 111 reported accidents involving 9 fatalities or 105 injuries on board self-unloaders since 1975. Of these accidents, the vast majority involved crew members. Only one other occurrence involving an injury sustained during cargo handling on self unloaders was found.

Analysis

Bulk cargoes, generally, have a tendency at some stage in the discharge operation to cease flowing and become hung-up. If the dedicated under-hold vibrators are unable to loosen the resulting residual piles of cargo, the piles are attacked by the crew using poles, spades, picks or, in extreme conditions, pneumatic drills.

When dealing with fine coal cargoes, the crew have predetermined escape routes so that, in the event of a rapid evacuation of the area, their paths do not cross. The deceased and the other crew man had each agreed on, and had told the OOW of, their plan to deal with the coal pile.

On this vessel such hang-ups of cargo are not unusual. A predetermined procedure to minimize risk is in place when men are sent to dislodge the hang-ups.

Even though the procedure was observed before and during the placement of the men in No. 2 hold, neither of the two men was able to get completely free from the down-flowing coal when the cargo started to move. The fatality occurred because the predetermined procedure to minimize risk was not followed. The fatality emphasises the need for constant vigilance when men are working in potentially dangerous areas, and for ongoing research to find safer procedures.

Findings

1. Many shipboard operations are dangerous or hazardous but are dealt with by risk management, complemented by safe procedures and by well-trained officers and ratings.
2. The predetermined procedure to minimize risk was not followed.
3. It is not known why the deceased did not turn and run away from the downrush of coal.
4. Low ambient temperatures may have caused a crust to form on the face of the coal pile, which may have caused a steeper angle of repose than 37° and hence a greater down-rush than would normally be expected.

Causes and Contributing Factors

The deceased was overcome by a sudden fracture and down-flow from the face of the coal pile. Instead of turning and running from the wave of small coal, he backed away, apparently stumbled or tripped, fell on his back and was overcome and buried under the coal.

This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board, consisting of Chairperson, Benoît Bouchard, and members Maurice Harquail and W.A. Tadros, authorized the release of this report on

14 August 1996.