

**MARINE OCCURRENCE REPORT**

**DAMAGE**

**TO THE BARGE "SAULT AU COCHON"  
AT THE DAISHOWA WHARF, FORESVILLE, QUEBEC  
21 JUNE 1995**

**REPORT NUMBER M95L0018**

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**

On 21 June 1995, while the Canadian barge "SAULT AU COCHON" was loading a cargo of sand at Forestville, Quebec, the hull buckled in way of No. 3 hold. A quantity of 7,350 metric tonnes of sand had been loaded by semi-fixed conveyor and was being levelled. The barge sustained major hull damage, but no one was injured as a result of this occurrence. Slight pollution was reported.

Ce rapport est également disponible en français.

## FACTUAL INFORMATION

### Particulars of the Vessel

Name	"SAULT AU COCHON"
Port of Registry	Québec, Quebec
Flag	Canadian
Official Number	330800
Type	Barge
Gross Tonnage	5,395.37
Length	119.8 m
Draught	5.1 m
Built	Steel, 1969, in St. Catharines, Ontario
Propulsion	Non-self-propelled
Owners	Groupe Mainguy Inc. Ancienne Lorette, Quebec

The water ballast tank system of the barge "SAULT AU COCHON" consists of four tanks separated longitudinally by the centre keelson. At the time of the occurrence, No. 1 and No. 2 tanks were empty, No. 3 tank held about 2,010 metric tonnes of ballast water and was being drained, and No. 4 tank held 1,422 metric tonnes of ballast water.

The "SAULT AU COCHON" had been used to transport sand and/or aggregate for the past three years. During the first two years, the cargo was levelled by bulldozers. Since the beginning of the season, a combination of power shovels and bulldozers had been used to level the cargo. On 21 June 1995, sand had been loaded in the middle and levelled over the forward three quarters of the hold by two power shovels and a bulldozer for part of the morning. There was no sand in the after part of the hold in way of No. 4 tank. When the bulldozer experienced some mechanical problems, power shovels were used to continue levelling the sand. The levelling proceeded more slowly then and was concentrated more in the middle because of the limited reach of the power shovels.

Because of the loading facilities, the barge could not be loaded without being turned. The tug had to stand by during this operation, which involved turning the barge in the opposite direction along the wharf. The operation was performed by the barge's personnel using the mooring cables. However, since the tug was busy refuelling, the belt of the loading conveyor was not stopped immediately. This delay, coupled with the limited reach of the power shovels, allowed sand to pile up to the level of the top of the coaming in the middle of the barge. It was not usual to let such a pile of sand accumulate. At 1415, the barge broke in the middle.

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<sup>1</sup> All times are EDT (Coordinated Universal Time (UTC) minus four hours) unless otherwise stated.

## **ANALYSIS**

Considering the amount of sand on board, its distribution and the amount of ballast water, it is deduced that a weight of at least 4,560 metric tonnes (ballast and sand) was applied in way of No. 3 tank, which is adjacent to the middle of the barge. This weight alone amounts to 43 per cent of the barge's deadweight capacity.

Such a distribution of the load produced excessive bending moments on the middle of the barge, causing structural ruptures, buckling and loss of longitudinal integrity of the hull.

## **FINDINGS**

1. A quantity of 7,350 metric tonnes of sand and 3,432 metric tonnes of ballast water was on board.
2. Owing to exceptional circumstances, a pile of sand was allowed to accumulate in the middle of the hold.
3. There was a total weight of at least 4,560 metric tonnes in way of No. 3 tank.
4. There was no sand in way of No. 4 tank.

## **CAUSES AND CONTRIBUTING FACTORS**

The hull of the barge "SAULT AU COCHON" suffered structural ruptures, buckling and loss of longitudinal integrity because of poor distribution of the load, causing excessive bending moments on the middle of the barge.

*This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board, consisting of Chairperson, John W. Stants, and members Zita Brunet and Maurice Harquail, authorized the release of this report on 13 May 1996.*