

MARINE OCCURRENCE REPORT

GROUNDING

“FEDERAL CALUMET”
WHILE DEPARTING THE UNIFORÊT DOCK
PORT-CARTIER, QUEBEC
14 DECEMBER 1996

REPORT NUMBER M96L0148

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 14 December 1996, the “FEDERAL CALUMET” was shifting from the Uniforêt Dock to an anchorage to await better weather conditions before completing loading. With a pilot on board and two tugs assisting, the ship departed at about 1225. The tugs were to turn the vessel quickly onto an appropriate easterly heading, giving her a clear run into the prevailing sea and swell. High and confused seas, and a northeast gale, prevented the aft tug from performing the manoeuvre as planned, and the ship drifted to the south. At about 1231, it was noticed that the ship did not appear to be moving or responding to engine or tug movements. The ship was found to have grounded in way of the No. 3 starboard double-bottom tank. The tugs held her in this position until the rising tide refloated her at about 1400. The vessel then proceeded, unassisted, to Sept-Îles, Quebec, for damage assessment and repairs.

Ce rapport est également disponible en français.

Other Factual Information

Particulars of the Vessel

Name:	“FEDERAL CALUMET”
Port of Registry:	Bridgetown, Barbados
Flag:	Barbados
Official Number:	725425
Type:	Geared bulk carrier
Built:	1996, Shanghai, China
Gross Tons:	20,837
Length:	200 m
Draught:	Forward: 9.65 m, Aft: 9.48 m
Crew:	21
Propulsion:	Mitsui B&W diesel, 10,476 BHP, fixed-pitch, single-screw
Owners:	Anglo-Eastern Ship Management Ltd., Hong Kong, China

The “FEDERAL CALUMET” arrived at the Port-Cartier pilot station on the morning of 10 December 1996. The pilot advised the master that the ship would dock on arrival at the Uniforêt dock, some 1.3 miles west-southwest of Port-Cartier harbour. (The master had been expecting to dock in Port-Cartier, rather than at the Uniforêt dock.)

The pilot informed the master that the Uniforêt dock was unsuitable when the wind and swell were from the northeast through east to the south. He instructed the master to use extra mooring lines. In this instance, six lines forward and six lines aft were to be used to secure the vessel. The pilot also indicated that the agent, pilots and tugs were aware that the “FEDERAL CALUMET” was stemmed for the Uniforêt dock, and that if they were needed they would all be available within 30 minutes of a very high frequency (VHF) radio call.

Two Voith-Schneider tugs were made fast, one forward and one aft, on the starboard side. The ship approached the dock from the east, swung the bow to the south between the buoys and, once the vessel’s stern was clear of the berth, she began to move astern alongside the dock. A stern line was put ashore. However, upon observing the sea conditions alongside, the pilot ordered the line let go, and the vessel went to anchor to await better conditions.

The next morning, December 11, the vessel was brought in and secured to the Uniforêt dock at 0200. The “FEDERAL CALUMET” was secured with her port side to the berth and her bow heading outward, leaving the

¹ All times are EST (coordinated universal time (UTC) minus five hours) unless otherwise stated.

forward section of the vessel extending beyond the dock about 115 to 130 feet (35 to 40 m). Cargo operations were from 0800 to 2200, daily, as the vessel loaded unitized wood pulp. Loading was expected to be complete on December 14.

As the "FEDERAL CALUMET" was a new ship on her inaugural visit, a reception was held on board on the evening of Friday, December 13, with representatives of local shipping interests attending. During this time, the master received a weather report forecasting northeast winds. He was again reminded of the adverse swell conditions possible at this berth, the need for a timely departure, and the availability of tugs and a pilot on 30 minutes' notice. The master was later seen on the bridge wing observing the weather.

At about 2200 on December 13, the wind freshened and veered to the northeast, accompanied by intermittent snow. The deck crew was put on standby because the "FEDERAL CALUMET" was being pushed off the berth by the wind.

At about 0200 on December 14, the Port-Cartier Port Authority noted the worsening sea conditions, as reported by an inbound pilot. The Port Authority closed the port to cargo vessel movements and, at the same time, the deck crew of the "FEDERAL CALUMET" was stood down. (The port reopened again at 1800.) Later that morning, during the falling tide, the "FEDERAL CALUMET" was surging, and was 6 to 10 feet (2 to 3 m) off the Uniforêt dock face. Due to the aftward lead of the bow lines, attempts to bring the vessel alongside only succeeded in pulling the vessel aft and closer to the concrete wall astern.

The ship's agent, who was also responsible for the stevedores and the loading of the remaining 1,330 tons of cargo, arrived at about 0730. Upon observing the sea conditions, he ordered a pilot and tugs, advising the master to prepare to depart for the anchorage.

The pilot arrived at about 0840, but he was unable to board until the tugs arrived and pushed the vessel back alongside at 0905. The pilot was not informed beforehand of the vessel's draught of 31.7 feet (9.65 m). As low water was at about 1000, he determined that a safe departure could not be made at this time. His main concern was the insufficient underkeel clearance to cross over a 32 feet (9.8 m) patch located 300 feet (91 m) west of the end of the dock. It was decided that one tug would remain pushing on the ship, easing the strain on the lines. The pilot and the other tug would return later when there was sufficient underkeel clearance. The pilot was also anticipating problems with another vessel in Port-Cartier.

The agent contacted the pilot at about 1100, to move the vessel out and thereby to reduce the tug costs. The pilot reboarded the ship at 1205 and, after a discussion with the master about the intended manoeuvre, the lines were singled up. The tugs were positioned fore and aft, initially to push the vessel against the berth. The line of the aft tug was secured to the vessel so that the tug could quickly pull the stern away from the berth once the mooring lines were clear. When the last line from ashore was clear at 1225, the aft tug began to pull the vessel's stern away from the dock. At the same time the forward tug, in conjunction with the vessel's bow thruster, was holding the bow in close proximity to the corner of the dock. When there was sufficient room between the dock and the vessel's quarter, the aft tug recovered her line and went to the port quarter to push the stern out. However, the swell conditions on the port quarter did not allow the tug to push as required, so she returned to the starboard quarter to re-secure her towline.

During this short interval, the "FEDERAL CALUMET", with little headway on, without the use of the aft tug and with the force of the northeast gale upon her, drifted to the south. As a result of this drifting, the vessel ran aground on the northern portion of the rock shoal lying just to the south of the berth. The master noticed the vessel's unusual movement and lack of response to a full-ahead engine order and informed the pilot that he thought the vessel had grounded. The time was noted as 1231.

The two tugs, the main engine and the bow thruster were used to prevent further movement onto the rocks. Soundings confirmed that only the No. 3 double bottom water ballast tank was holed, on the starboard side.

Although arrangements were made for a tug from Sept-Îles to assist the "FEDERAL CALUMET", a three-hour wait for her arrival precluded any immediate help. Marine Communications and Traffic Services was informed of the vessel's situation at about 1340. However, the tide was rising and so, with the combination of tugs, main engine and bow thruster, the vessel came free at about 1359. Prior to counterflooding to correct the list, further soundings confirmed the integrity of the other tanks. The pilot disembarked at 1425 and, along with the tugs, returned to Port-Cartier.

There was no pollution as a result of this occurrence.

Damage

The bottom shell plating and associated bottom structure were damaged only in way of the No. 3 double-bottom water ballast tank, on the starboard side. The shell was indented from frame 136 to frame 166 and from the bilge keel to a point 16.4 feet (5.0 m) inboard of the bilge keel. The maximum indentation depth was about 1.6 feet (0.5 m) and there were some 13 cracks and punctures at various locations. The transverse and longitudinal floors, the web frames and longitudinal stiffeners were found buckled and detached at various locations throughout the indentation. The inner bottom and associated structure were found to be unaffected. The nature of the damage, as seen in an underwater video, indicated that the motion of the vessel was more lateral than forward at the time of grounding.

On the radio advice of the agent, the "FEDERAL CALUMET" proceeded slowly (to reduce hull stresses) to Sept-Îles without informing or getting authorization from Transport Canada, Marine Safety. She arrived and anchored in Sept-Îles Bay, without further incident, at 1954 on December 14. A berth was arranged and divers assessed the damage. Repairs were completed to class satisfaction, and the vessel departed for the Far East on December 28, without the balance of her cargo.

Pilotage and Tug Service

In Port-Cartier, pilotage is compulsory and is provided by the Quebec Cartier Mining Company (QCM) under standard pilotage conditions. The details are set out in the company's publication *Advice for Vessels Bound for Port-Cartier, Québec, Canada*, which was effective from 01 April 1996.

The pilots are employed by QCM, and are not required to be federally licensed, as this is a private port. Nonetheless, aspiring pilots undergo a strict apprenticeship, peer evaluation and selection prior to attending the ship-handling course at Revel, France. This process is followed by further training, peer evaluation, and examination before status as a QCM pilot is granted. Refresher and upgrading training are provided when required. All the pilots have previous merchant marine experience.

Before any vessel movement is made, it is customary for a pilot to advise a vessel's master, and the tugs, of his intentions and anticipated manoeuvres. Additionally, when a vessel is bound for the Uniforêt dock, the master is routinely informed of the added risk in easterly wind and swell conditions, and he is informed that he should not delay in asking for assistance to prevent the vessel from becoming trapped with too great a draught at a low tide. He is also informed that the ship's agent is aware of the special circumstances at this dock.

The pilots prefer to move a vessel out before the wind and swell conditions increase the risk, especially if the vessel extends beyond the dock and is deeply laden, as it was in this instance. This departure procedure, devised by the pilots, has been used since 1975. The pilot on the "FEDERAL CALUMET" has nine years' piloting experience in addition to having been a tug master in this port for eight years.

Tug service is compulsory and is provided in accordance with the standard towing conditions of the aforementioned *Advice for Vessels* document. Both tugs are 108.4 feet (33 m) long, are of Voith-Schneider design and were built in 1973. Each tug has two main engines providing a total of 3600 BHP. Each tug has two crews, each consisting of a master, a deck-hand and an engineer, all of whom work 12-hour shifts. These tugs are highly manoeuvrable, but require a deep draught due to their cycloidal propellers. It is generally accepted that their maximum thrust is about 25 per cent less than the thrust of a nozzle-equipped screw tug of equal power.

In a typical vessel departure from the Uniforêt dock, the forward tug holds the bow steady and in close proximity to the corner of the dock while the aft tug initially pulls and then pushes the stern off. The tug masters positioned aft consider it safer to push as soon as possible, using the full power of the tug in the limited space available. Also, sea conditions in this confined area can be very rough, greatly increasing the risk of a towline parting. The deep draught of the tug also limits the pulling radius of action during these times. There is little forward movement required of the departing vessel, as the tugs turn her quickly onto an appropriate easterly heading, giving her a clear run into the prevailing sea and swell.

Anecdotal evidence indicates that this was not the first time that tugs had been used to hold vessels alongside this dock on an hourly basis. Sometimes vessels need to be held in position while they await sufficient underkeel clearance for departure. Agents have regularly complained about the cost of this procedure.

Uniforêt Dock

The Uniforêt dock is owned by the town of Port-Cartier, which leases it to Uniforêt. Stevedoring services at the dock are provided to Uniforêt by Federal Marine Terminals, which also acts as agent for the ships at the Uniforêt dock and at the Port-Cartier harbour. The agent is aware of the special difficulties of this dock and the need for a timely departure when sea conditions are worsening.

The dock has less-than-adequate fendering protection, especially on the south-west corner. Pilots have frequently complained that the fendering is inadequate, and that the town has made no substantial fendering improvements in response to their complaints. The dock was built around 1975 to accommodate vessels about 500 feet (152 m) in length. The vessels now using the dock are generally longer and at a deeper draught.

At a dock users' meeting held in October 1995 (prior to the occurrence), pilots had expressed their discomfort with manoeuvring vessels greater than 550 feet (168 m) long, with an arrival draught greater than 30 feet (9.14 m). The minutes noted that in the past, vessels had waited too long before vacating the berth, thus placing the vessel, the pilots and the tugs in a serious situation. It was noted that tides affected the sailing time of vessels that had departure draughts over 30 feet (9.14 m), as was the case with the "FEDERAL CALUMET".

Analysis

QCM provides pilotage and tug services to Uniforêt on a contractual, as-required basis. The pilots have evolved a berthing/unberthing procedure based on their shiphandling experience, the tugs in use at Port-Cartier, and the fact that ever-larger and deeper-draught vessels are now using the Uniforêt dock.

At the dock users' meeting the pilots stated that, for this dock, they were only comfortable with vessels up to 550 feet (168 m) in length and having an arrival draught of less than 30 feet (9.14 m). The pilots routinely inform masters of vessels using this dock of the danger of staying alongside in certain wind and sea conditions. They stress the importance of not waiting too long before calling for assistance. An early call is intended to prevent the vessel from becoming trapped at the dock, and forced to wait until the combination of draught and tide allow departure. Anecdotal pilot information indicates numerous close calls in the past where deep-draught vessels were caught alongside by the falling tide, in very bad sea and swell conditions. Departure is delayed in the hope that sea conditions will improve, and that the vessel will not be forced to move to an anchorage. The costs of such a move, and the attendant cargo delays, are the costs of a safer operation.

The vessels using this dock are mostly of foreign-flag, and must rely on their agents for such working and customs of the port as the calling of tugs, pilots and Customs officers.

The "FEDERAL CALUMET" was carrying a relatively inert cargo and there was no pollution as result of this occurrence, but chemical tankers regularly use this dock.

On the evening before the occurrence, the master, agent and pilots were all aware of the forecast weather, and the master was seen on the bridge looking at the effects of the wind and sea on his ship. He had the crew on

standby until the vessel's position stabilized at about 0200 on December 14.

Due to the sea conditions, Port-Cartier was closed to navigation at 0200 on December 14. It was apparent that the vessel at the more-exposed Uniforêt dock would need assistance. However, QCM has no control over the Uniforêt dock and only provides pilotage and tug service on a contractual basis, when requested.

High water was at 0400, and with the wind and sea increasing on a rising tide, the "FEDERAL CALUMET" could have left the dock that morning.

Findings

1. As with other deep-draught vessels using the Uniforêt dock, the "FEDERAL CALUMET" was temporarily trapped during low tide with insufficient underkeel clearance for departure.
1. When the agent first called the pilot to have the vessel moved to anchorage, he did not inform the pilot of the vessel's (almost fully laden) draught.
1. Pilots are not receiving proper notice and information regarding departure times and draughts for vessels at the Uniforêt dock, thus placing vessels at unnecessary risk.
1. The vessel master and agent were aware of the danger and likelihood of damage at this dock during the prevailing weather conditions, yet did not act to move the vessel to an anchorage while the underkeel clearance was adequate.
1. Due to sea conditions, the Port-Cartier harbour was closed to commercial navigation from 0200 to 1800 on December 14.
1. The pilots have evolved a satisfactory method of manoeuvring the longer and deeper-draught vessels that are now using the Uniforêt dock, when prevailing tide, sea and weather conditions are suitable.
1. The master had the weather forecast on the evening of Friday, December 13, and the deck crew were put on standby.
1. After the pilot left the "FEDERAL CALUMET" he was called by the agent insisting that the ship be moved to the anchorage, thereby reducing tug costs.
1. The ship's agent advised the "FEDERAL CALUMET" to proceed to Sept-Îles without informing Transport Canada, Marine Safety of the grounding occurrence, and her damaged condition.
1. Pilots have expressed the need for more substantial corner fendering at this dock but there is no agreement between the town and the operator about who should bear financial responsibility for the remedial action.

Causes and Contributing Factors

The “FEDERAL CALUMET” grounded because the high and confused seas and the prevailing weather conditions prevented the aft tug from operating effectively.

Contributing factors were: the agent’s pressure on the pilot for a departure in adverse swell conditions, and that the pilot’s advice regarding a timely departure—before conditions worsened—was not heeded.

Safety Action

Urgent Departure Procedure

As a result of this occurrence, the agency responsible for ordering tugs and pilots was reportedly reminded by the pilots of the necessity of following pilots’ advice regarding urgent departure in deteriorating weather.

Wharf and Port Improvements

Discussions between the town of Port-Cartier, the wharf operator and Unifôret are ongoing regarding improvements to the wharf, port facilities and harbour approaches, but no agreement has been reached or deadline set for any improvements.

This report concludes the Transportation Safety Board’s investigation into this occurrence. Consequently, the Board, consisting of Chairperson Benoît Bouchard, and members Maurice Harquail, Charles Simpson and W.A. Tadros, authorized the release of this report on 22 July 1998.