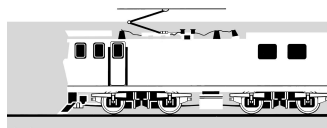
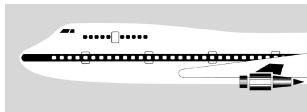


## MARINE OCCURRENCE REPORT

03-201

passenger ferry *Harbour Cat*, engine room fire, Auckland Harbour

16 January 2003



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The Commission may make recommendations to improve transport safety. The cost of implementing any recommendation must always be balanced against its benefits. Such analysis is a matter for the regulator and the industry.

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## **Report 03-201**

### **Passenger ferry *Harbour Cat***

### **Engine room fire**

### **Auckland Harbour**

**16 January 2003**

## **Abstract**

On Thursday 16 January 2003, at about 1743, the passenger ferry *Harbour Cat* was proceeding from Birkenhead to Auckland with 3 crew and 2 passengers on board when a fire was discovered in the starboard engine space. The crew extinguished the fire and the ferry continued to the Auckland ferry terminal on its port engine alone.

One of the crew suffered from slight smoke inhalation.

Safety issues identified included:

- access to engine rooms on passenger ferries
- adequacy of procedure and training of ships' crew in tackling engine space fires.

Safety recommendations were made to the managing director of Fullers Group Limited and the Director of Maritime Safety to address the safety issues.



**Harbour Cat at the Auckland ferry terminal**

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## Abbreviations

AFFF	Aqueous film-forming foam solution
GPS	global positioning system
kg	kilogramme(s)
kW	kilowatt
ltr	litre(s)
m	metres
MPa	mega Pascal
NZDT	New Zealand daylight saving time (UTC +13 hours)
SOLAS	international convention for the safety of life at sea
t	tonne(s)
UHF	ultra high frequency
UTC	universal co-ordinated time
VHF	very high frequency

## Glossary

companionway conduct (con)	nautical term for a staircase or ladder joining two decks in control of the vessel
deckhead	nautical term for ceiling
fire flap	a flap that can be closed to restrict the supply of air to a compartment in the event of a fire to assist in smothering the fire
GPS	satellite based system, which gives an accuracy of about 0.2 miles as the signal is variably distorted for military and security purposes. Local corrections are often provided through a DGPS system
gross tonnage	measurement of commercial ship based on the total volume occupied by enclosed spaces. One actual ton of measurement is the equivalent of 2.83m <sup>3</sup>
in way of	connecting to or in the vicinity of
net tonnage	derived from gross tonnage by deducting spaces allowed for crew and propelling equipment
port	left hand side when facing forward
starboard	right hand side when facing forward
trunk radio system	a private radio system used for internal communication between different units in the Fullers Ferry Group

## Data Summary

### Vessel Particulars:

Name:	<i>Harbour Cat</i>
Type:	Catamaran passenger ferry
Class:	Class V - Auckland enclosed water limits Class IV - Auckland inshore water limits
Limits:	Auckland enclosed water limits Auckland inshore water limits
Allowable occupants:	Auckland enclosed water limits - 200 Auckland inshore water limits - 200
Length:	20 m
Construction:	Aluminium
Built:	1997
Propulsion:	2 x Scania DS-1-74 6 cylinder diesel engines
Owner/operator:	Fullers Group, Auckland
Crew:	3

**Date and time:** 16 January 2003, 1743<sup>1</sup>

**Location:** Auckland Harbour

**Persons on board:**  
crew: 3  
passengers: 2

**Injuries:**  
crew: 1 minor  
passengers: Nil

**Damage:** Fractured fuel pipe, melted air filter, damage to electrical wiring and fittings, smoke damage

**Investigator-in-charge:** Captain Iain Hill

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<sup>1</sup> Times in this report are New Zealand Daylight Time (UTC + 13 hours) and are expressed in the 24-hour mode.



# 1 Factual Information

## 1.1 History of the trip

- 1.1.1 On Thursday 16 January 2003 at about 1710, a crew change took place on the ferry *Harbour Cat*, which had been in service throughout the day. The relieving crew prepared the *Harbour Cat* for the evening service between Auckland, Northcote and Birkenhead.
- 1.1.2 At about 1720, the *Harbour Cat* departed from Auckland ferry terminal with 143 passengers and 3 crew on board. At about 1735 the *Harbour Cat* departed from Birkenhead for the return trip to Auckland with 2 passengers and the same crew on board.
- 1.1.3 At about 1740, the café attendant noticed smoke trailing behind the vessel. A cursory inspection revealed that the smoke was coming from an air vent for the starboard engine space. The café attendant immediately left the lower deck to go up and inform the Master. Around the same time an alarm indicating fire in the starboard engine space sounded at the conning position.
- 1.1.4 The master shut down the starboard engine and reduced the port engine speed to just above idle. He then handed over the con of the ferry to the deckhand, with instructions to inform the ferry operations centre of the possible fire via the UHF internal trunk radio system.
- 1.1.5 The master made his way to the lower deck, briefing the 2 passengers, who were sitting on the upper deck, of the situation on the way. He met the café attendant, who was making his way up the companionway, and together they went to investigate.
- 1.1.6 On reaching the lower deck, the master closed the starboard engine space fire flap and, with the assistance of the café attendant, removed the banks of seats that covered the starboard engine space access hatches. The café attendant readied the 2 portable foam fire extinguishers, located nearest to the engine space hatches.
- 1.1.7 The master considered using the fixed fire extinguishing system but as the only 2 passengers onboard were located well away from the engine spaces he decided to inspect the engine space first to determine the extent of the fire.
- 1.1.8 The master raised the forward access hatch and saw thick black smoke, some of which entered the lower passenger cabin. Closing the hatch, he instructed the café attendant to open the cabin access doors to help clear the smoke.
- 1.1.9 The master then raised the aft access hatch and saw 2 small fires; one in the region of the engine air filter and the other on the lagging surrounding the after access hatch. The master and the café attendant used the 2 foam fire extinguishers to extinguish the fires and smother the surrounding area.
- 1.1.10 The master entered the engine space to look for other fires but was unable to see due to dense smoke in the compartment. He came out of the compartment.
- 1.1.11 Leaving the café attendant to gather more extinguishers and to monitor the situation, the master returned to the conning position to assist the deckhand.
- 1.1.12 The ferry operations centre had dispatched the ferry *Quickcat II*, from the ferry terminal and diverted another ferry in the vicinity to assist the *Harbour Cat*. However, with the fire at least under control, the master was able to berth the *Harbour Cat* at the ferry terminal at about 1750 without assistance.
- 1.1.13 The passengers disembarked and the crew were sent to hospital for check ups. The café attendant suffered from slight smoke inhalation but was not detained in hospital.

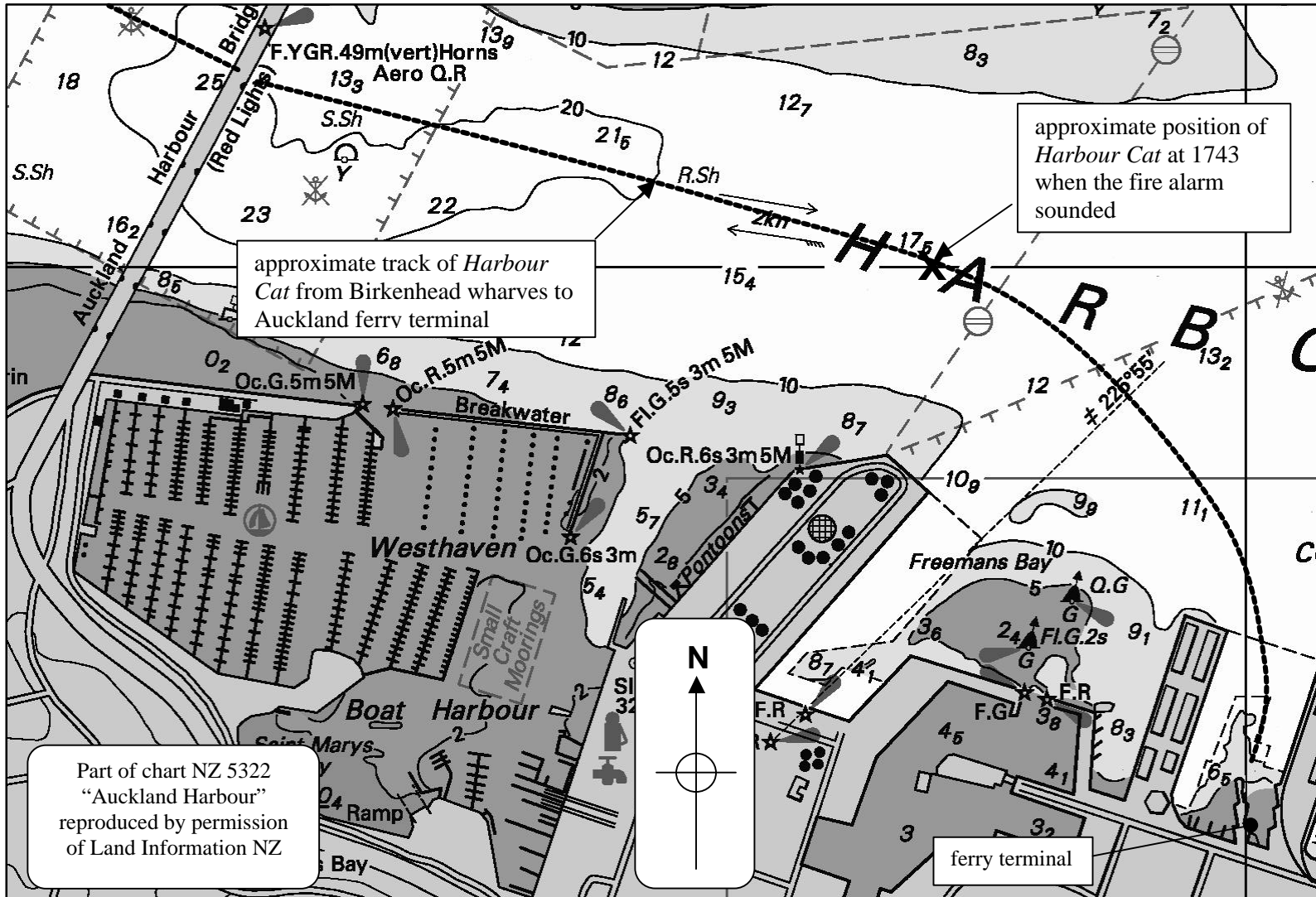
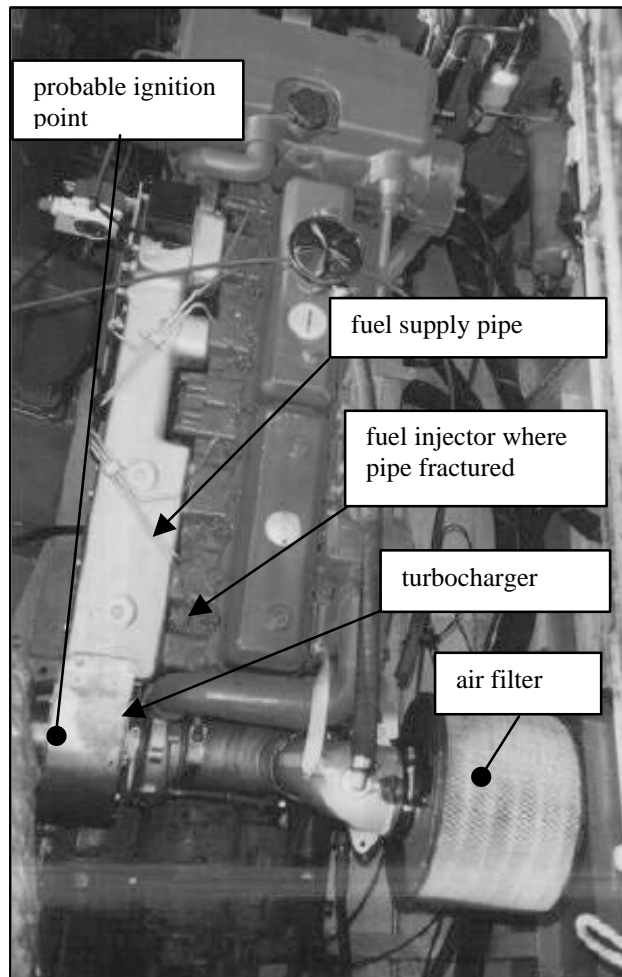


Figure 1  
 The approximate position of the *Harbour Cat* and partial track from Birkenhead to Auckland ferry terminal

## 1.2 Post fire inspection

- 1.2.1 A relief crew was put on board to monitor the situation overnight and to start general cleaning. After confirming that the fire was fully extinguished the crew then started a general cleanup operation.
- 1.2.2 A maintenance team started investigations on the morning of 17 January 2003. It discovered that the fuel pipe leading to the fuel injector for the aftermost cylinder had fractured where the pipe entered the compression nipple on the fuel injector. This part of the fuel line was unsheathed and so did not re-cycle the fuel oil or sound the alarm.



**Figure 2**  
A Scania DSI-11-74 engine similar to those installed on the *Harbour Cat*

- 1.2.3 The New Zealand representative for Scania marine diesel engines stated that fuel pipes breaking in the vicinity of the compression nipple was an unusual occurrence that he had not previously witnessed.
- 1.2.4 The operator tested the fuel injector and the fuel pump to ensure that they were operating correctly. Neither item was found to be producing pulsing or hammering in the fuel lines, which may have contributed to the fuel line failure.
- 1.2.5 The fuel pipe that fractured contained diesel fuel at an operating pressure of 300 bar [30 MPa]. When the pipe fractured fuel was able to spray out into the surrounding area. Located in the vicinity of this fuel pipe were the turbocharger, exhaust manifold and air filter.

- 1.2.6 The auto ignition temperature<sup>2</sup> of diesel fuel is 257°C. The engine manufacturer indicated that with the engine operating at normal operating speed the exhaust gas temperature would have been up to about 490°C. The engine was water-cooled and so the exhaust pipe itself would have been at a lower temperature; probably between 300° and 400°C.
- 1.2.7 The air filter was a standard Scania spare part constructed of plastic with a concertinaed paper element. The outer casing and paper element both showed signs of having been on fire.
- 1.2.8 The junction box for the engine electrics was found to have melted. Fire damage was also apparent to some of the wiring entering it, the fluorescent light diffuser also melted. The fire detector head above the engine was also fire damaged (see Figure 4).

### 1.3 Vessel information

- 1.3.1 The *Harbour Cat* was a catamaran built in Keri Keri in 1997. It had an overall length of 19.473 m, a breadth of 6.59 m, a gross tonnage of 43.59. Propulsion was provided by 2 Scania DSI-11-74 diesel engines (see Figure 1), producing a total power of 600 kW. Each engine drove a fixed-blade propeller through a twin disc 5114 gearbox.
- 1.3.2 The vessel was owned and operated by Fullers Group Limited. It was certified to carry 200 passengers and was operating under Safe Ship Management supplied by SGS Ships Management Systems New Zealand Limited. The Safe Ship Management certificate was issued on 16 August 2002 and valid, subject to periodic inspections, until 30 November 2005.
- 1.3.3 The conning position for the *Harbour Cat* was at the forward end of the upper passenger cabin and was fitted with steering console, compass, radar, GPS, VHF radio communications, UHF trunk radio system, internal public address system, fire detection panel, electrical switchboard, engine controls and alarm panel.
- 1.3.4 The engines were located one in each hull, in separate compartments, below the deck of the main passenger cabin. Two hatches to each engine space were set into the deck of the main passenger cabin. In order to get to the hatches and gain access to the engine spaces, the passenger seating in the area had to be removed.
- 1.3.5 Electrical power was supplied by a separate generator, which was powered by a 3-cylinder diesel engine and located in the starboard engine space.
- 1.3.6 When the operator purchased the vessel in November 2001, the engine spaces were not insulated, especially on the deckhead above the engines. The deckhead, which also formed the deck of the main passenger cabin, was constructed of marine ply. The operator insulated the engine spaces with fire and noise retardant material.
- 1.3.7 At the time of the fire, the *Harbour Cat* was required to comply with Maritime Rules, Part 40A design construction and equipment – passenger ships which are not SOLAS ships, appendix 3 section 3.3 restricted limit ships. These rules are based on the length of ship and the number of passengers that it may carry. At the time of the fire the *Harbour Cat* complied with all statutory regulations for its length and passenger capacity.
- 1.3.8 When the *Harbour Cat* was purchased from its previous owners the operators upgraded the fire fighting equipment on board. At the time of the fire the *Harbour Cat* had the following fire fighting and detection equipment on board:

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<sup>2</sup> Auto ignition temperature is that at which a gas or vapour can explode or burst into flames with no other source of ignition.

Quantity	Fire fighting equipment on board	Statutory requirement / additional equipment
1	Power driven fire pump, water service pipes and hydrant	Statutory requirement
2	Fire buckets	Statutory requirement
1	Fire hose	Statutory requirement
1	Dual purpose nozzle	Statutory requirement
1	Fire axe	Statutory requirement
1	Safety lamp	Statutory requirement
1	Fire blanket	Additional equipment
1	3.5 kg CO <sub>2</sub> fire extinguisher	Statutory requirement
1	4.5 kg Dry powder fire extinguisher	Statutory requirement
2	9 litre AFFF foam fire extinguisher	Statutory requirement
2	2 litre AFFF foam fire extinguisher	Additional equipment
2	FM200 fixed CO <sub>2</sub> fire extinguishing systems for the engine spaces, containing 15 kg CO <sub>2</sub> each side	Additional equipment
1	Argus, fire detection system, with heat sensors in each engine space	Additional equipment

#### 1.4 Personnel information

- 1.4.1 The master of the *Harbour Cat* served in the Royal New Zealand Navy (RNZN) for two years from the age of 17. He then trained as a commercial fisherman and fished until he joined Fullers Group Limited in 1999. He had initially worked for Fullers Group Limited as a café and deck hand before being promoted to master in early 2000. He held a New Zealand Coastal Masters certificate with home trade endorsement and was also qualified as a RNZN and merchant navy able-bodied seaman. He had completed a RNZN firefighting course.
- 1.4.2 The deckhand had worked for Fullers Group Limited for the previous 2 years, prior to that she had worked on ferries in Australia. She held an inshore launch masters certificate gained in September 2000, which did not include a firefighting component. She had attended in-house fire fighting training.
- 1.4.3 The café attendant had worked in this role for the Fullers Group Limited for the previous 20 months. This was his first employment in the maritime industry and he held no marine qualification. He had not undertaken a firefighting course other than in-house training.

#### 1.5 Hours of work

- 1.5.1 In the previous 3 days the master had worked a total of 29 hours in a total of 3 shifts, comprising one 11 hour shift, one 8 hour 45 minute shift and one 9 hour 15 minute shift. His last shift had ended at 0145 on the Thursday morning, giving him a 14 hour 45 minute rest period before he started work on the day of the fire.
- 1.5.2 The deckhand and the café attendant had worked a total of 18 hours in the preceding 3 days with a rest day three days before and then one 8 hour 45 minute shift and one 9 hour 15 minute shift. They also had finished work at 0145 on the Thursday morning allowing them a 14 hour 45 minute rest period before they started work on the day of the fire.
- 1.5.3 The incident occurred at about 1743 when the crew of 3 were about 1 hour 15 minutes into their work period.

## 1.6 Operating procedures

1.6.1 The operators standard operating procedures contained in their safety manual required that there was:

Thorough inspection and testing of all machinery, controls, steering, etc before vessel is in service.

Continuous monitoring of vessel systems shall be carried out when vessel is in service.

1.6.2 An entry was made in the *Harbour Cat's* logbook confirming that all start up checks had been carried out and were satisfactory at the start of the first shift on the day of the fire. There was no record of any in-service checks during the day.

1.6.3 The safety manual did not require a check to be made of the engine spaces at the change of shift. The master indicated that this was usually done. However, owing to the ferry being behind schedule and the difficult access to the spaces, a check had not been made on the day of the fire.

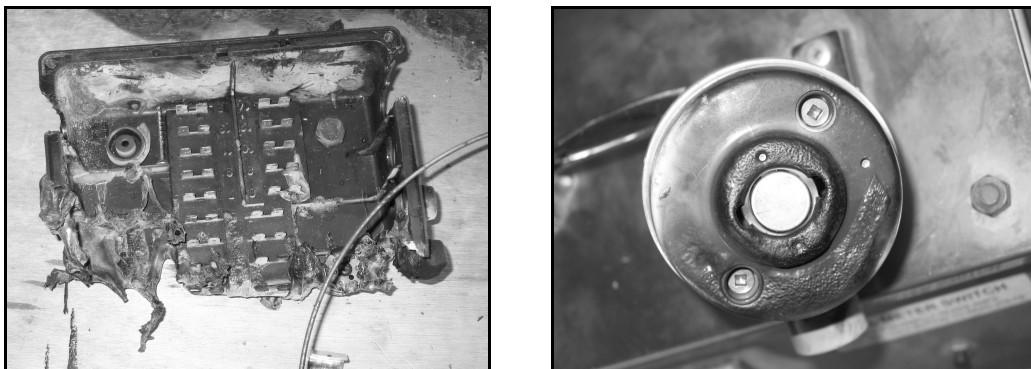
1.6.4 The procedures to be followed in the event of a fire on board were documented in the safety manual in the form of a flow diagram (see Appendix 1).

## 1.7 Previous occurrences

1.7.1 Shortly after the operator purchased it, the *Harbour Cat*, suffered an engine room fire on the starboard main engine. The cause of the fire on that occasion was found to be a fractured fuel pipe leading to one of the fuel injectors. The pipe probably failed due to age and vibration.

1.7.2 After that fire the operator obtained jacketed fuel pipes from the engine manufacturer and fitted them in accordance with the manufacturer's guidelines.

1.7.3 A jacketed fuel pipe has an outer sheath surrounding the fuel line. If the fuel line should fracture or break, the fuel was directed back along the sheath. In such an event an alarm alerted the operator to a fault.

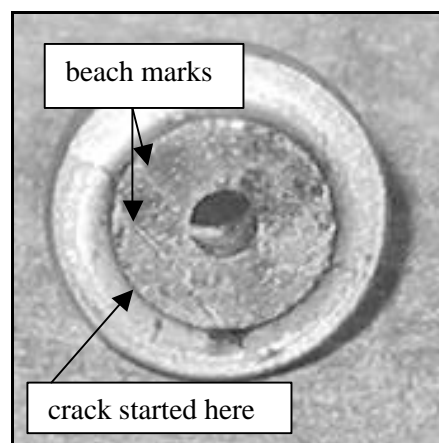


**Figure 3**  
**Damage to electrical junction box and fire detector head**

## 1.8 Subsequent occurrence (03-208)

1.8.1 On Friday 20 June 2003 at about 0620, the *Harbour Cat* was on its first ferry run of the day from Devonport to Auckland with 28 passengers on board when a port engine alarm showed a high operating temperature. The master reduced the speed of the port main engine to allow it to cool. Shortly after this the starboard spill tank alarm activated indicating a burst fuel line and the master immediately shut down the starboard engine.

- 1.8.2 The master of the *Harbour Cat* alerted the ferry operations centre of the problem and made an announcement to the passengers to inform them of a technical problem and a possible small delay to the scheduled service. The master alerted his crew who then readied the emergency equipment for use if required. Using the port engine only the master continued to con the *Harbour Cat* to the Auckland terminal, arriving about 5 minutes later.
- 1.8.3 The ferry operations centre had mobilised extra staff to help disembark the passengers at the terminal. The *Harbour Cat* was taken out of service and a maintenance crew investigated the incident.
- 1.8.4 The maintenance crew found that the overheating of the port engine was caused by the heat exchanger not working efficiently. The broken fuel pipe on the starboard engine was found to be the one serving No. 6 cylinder.
- 1.8.5 The broken fuel pipe was the replacement pipe for the one that had fractured previously on 16 January 2003, and had fractured again in the same area. However, this time the safeguards instigated by Fullers Group Limited in fitting jacketed pipes worked in that the fuel from the broken pipe was diverted back through the jacket causing an alarm and alerting the crew rather than causing a fire.
- 1.8.6 The operator instigated a full overhaul of the starboard engine and engaged outside contractors to align the engine, gearbox and propeller shaft, however, it was found that re-alignment was not necessary as the engine was still in alignment.
- 1.8.7 The operator employed the services of a vibration and balancing engineer to investigate if there was any vibration that could have caused the fracture. The engineer undertook tests, attended by an investigator from the Commission, over a range of operating parameters but could not discover any vibrations that were likely to have caused the fracture.
- 1.8.8 The operator had the fractured fuel pipe and nipple examined by a metallurgist. The metallurgist found that the failure as evidenced by beach marks was because of metal fatigue. The metal fatigue involved gradual crack growth under pulsing during each fuel injection, which possibly induced a slight cyclic flexing of the pipe (see Figure 4).



**Figure 4**  
**Fracture surface on the nipple, showing the extent of the slow cyclic crack fatigue growth (beach marks) perpendicular to the tubes' natural flex**

- 1.8.9 The metallurgist suggested that, if possible, to reduce the stresses, raise the endurance limit and increase the usable life of the fuel pipe, heavier pipe with a greater cross sectional area and possibly constructed out of higher strength steel be used.

- 1.8.10 The operator changed the operation of the *Harbour Cat* to inner harbour work during the morning and evening peak periods only and as a result was able to reduce the operating revolutions of the engines. Due to physical constraints it was not possible to fit a larger pipe, so the operator arranged for the fitment of a new bracket to the fuel pipe to reduce the vibration length of the pipe. The operator also amended the maintenance schedule for the engine to replace the fuel pipe at intervals of 400 hours of operation.

## 2 Analysis

- 2.1 When the fuel pipe fractured, diesel fuel under pressure would have been sprayed in the general locality including the exhaust manifold. Because the temperature of the manifold was above the auto ignition temperature of the fuel a fire resulted.
- 2.2 In fitting sheathed fuel pipes to the engine the operator reasonably expected that fuel loss from a pipe fracture would be contained and an alarm raised. A fracture of a fuel pipe in way of the compression nipple was not expected in normal operation and its cause was not clear.
- 2.3 The fracture in such a position may have resulted from stress on the pipe caused by over tightening of the compression nipple during fitting resulting in a fatigue fracture.
- 2.4 The engine space and access to it was restricted. Movement into and around the space for maintenance or routine checks would have been constricted. Therefore, it is possible that the fuel pipe, situated near the end of the engine, may have inadvertently been damaged during such maintenance or checks.
- 2.5 Although the master stopped the engine, and thus the fuel supply quickly, the lagging and air filter were saturated in diesel fuel and would have continued to burn.
- 2.6 The engine space being naturally vented would not have allowed enough air for the complete combustion of the fuel, evident in the thick black smoke that alerted one of the crew to the situation. The master's action in closing the fire flap was prudent and would have further restricted the air supply, which would have retarded the fire.
- 2.7 The café attendant noticed the smoke because he had minimal passengers to attend to. Had he been busier the smoke may have gone unnoticed for longer. However, the operator's fitting of heat detectors in the engine space provided early warning to the master.
- 2.8 The flow diagram in the safety manual did not differentiate between fire in different parts of the ferry. However, actions taken to fight fires in open spaces are different to those for enclosed spaces or spaces containing hazardous materials.
- 2.9 To open an enclosed space in which there is a fire can have potentially catastrophic results, allowing the fire to expand rapidly and burn more fiercely.
- 2.10 The flow diagram did not take into account that the *Harbour Cat* was fitted with a fixed fire extinguishing system for the engine space which if used would have protected the passengers and crew from the ingress of smoke and fire into the passenger spaces.
- 2.11 The master's action in opening the access hatch to assess the state of the fire was instinctive though not necessarily correct. His RNZN fire fighting training was based on having a large trained team. When faced with the fire on *Harbour Cat* he only had the resources of a single crew member who had only received basic in-house training. Had the fire gained a better hold, the outcome of opening the hatch could have been far more serious.
- 2.12 The engine space was fitted with a CO<sub>2</sub> fixed fire extinguishing system, which could have been used to extinguish the fire without the necessity of opening the access hatch and the possible spreading of the fire and exposure of the passengers and crew to smoke.



- 2.13 Had there been more passengers, for example the 143 that were on board only 10 minutes earlier, gaining access to the hatches would have been more difficult and time consuming. In such a situation the use of the fixed fire extinguishing system was more imperative.
- 2.14 The design of the ferry with the engine room access hatches located under passenger seating in the main cabin and the restricted access when opened was not conducive to regular operational checks of the engine spaces being made. Other ferries of similar design in the fleet had access hatches located in the aisles between the seating in the passenger cabin allowing easier access.
- 2.15 In the light of the fuel pipe fracture that occurred on 20 June 2003, it was appropriate for the operator to have had the engine, gearbox and propeller shaft re-aligned and vibration analysis undertaken. However, no misalignment or undue vibration was found to be present.
- 2.16 The metallurgist reported that the fracture was possibly due to vibration cracking. As No. 6 cylinder is the furthest away from the fuel pump and consequently has the longest fuel pipe length, it is possible that a vibration was set up due to the length of pipe.
- 2.17 As the operator was unable to fit a larger fuel pipe to the engine due to physical constraints the addition of an extra bracket on the fuel pipe line may serve to dampen any localised vibrations that caused the pipe to fracture.

### 3 Findings

Findings and safety recommendations are listed in order of development and not in order of priority.

- 3.1 The *Harbour Cat* was correctly manned and certified at the time of the occurrence.
- 3.2 The *Harbour Cat* had more than the regulatory requirements for fire fighting equipment.
- 3.3 The fire was caused by the fracture of a fuel line that resulted in diesel fuel under high pressure spraying onto a hot surface.
- 3.4 The actions undertaken by the crew to extinguish the fire, whilst commendable and effective, did not take into consideration the effect opening the access hatch could have had on the fire.
- 3.5 Had there been more than minimal passengers onboard the ferry it would have been difficult to access the engine spaces.
- 3.6 The flow diagram for the actions to be taken in the case of a fire on board the *Harbour Cat* was not specific enough in that it did not specify areas of the vessel requiring differing actions nor did it take into account the various equipment available on board.
- 3.7 The master was the only member of the crew who had attended an established firefighting course; the other members had only received in-house training.
- 3.8 Fatigue was not considered to be an issue in this occurrence.
- 3.9 The construction of the ferry and means of access to the engine rooms made routine inspections, as required by the Safe Ship Management manual, difficult and prone to be ignored whilst the ferry was operational.
- 3.10 The fracture that occurred on 20 June 2003 was probably caused by vibration, and it is possible that the fracture on 16 January 2003 was also caused by vibration. The source of the vibration could not be conclusively determined.
- 3.11 The addition of an extra bracket on the fuel pipe line may alleviate the localised vibration problem.

## 4 Safety Actions

- 4.1 Following the occurrence Fullers Group Limited fitted shielding around the fuel supply pipes to prevent diesel fuel being able to impinge on the hot metal parts of the exhaust manifold and turbocharger. The shielding consisted of a metal cover over the top of the engine above the fuel injectors and fuel pipes, and extended down the side of the engine to the fuel pump. Further shielding was fixed over the exhaust manifold along the length of the engine.
- 4.2 In view of the safety action taken no safety recommendation regarding this issue has been made.

## 5 Safety Recommendations

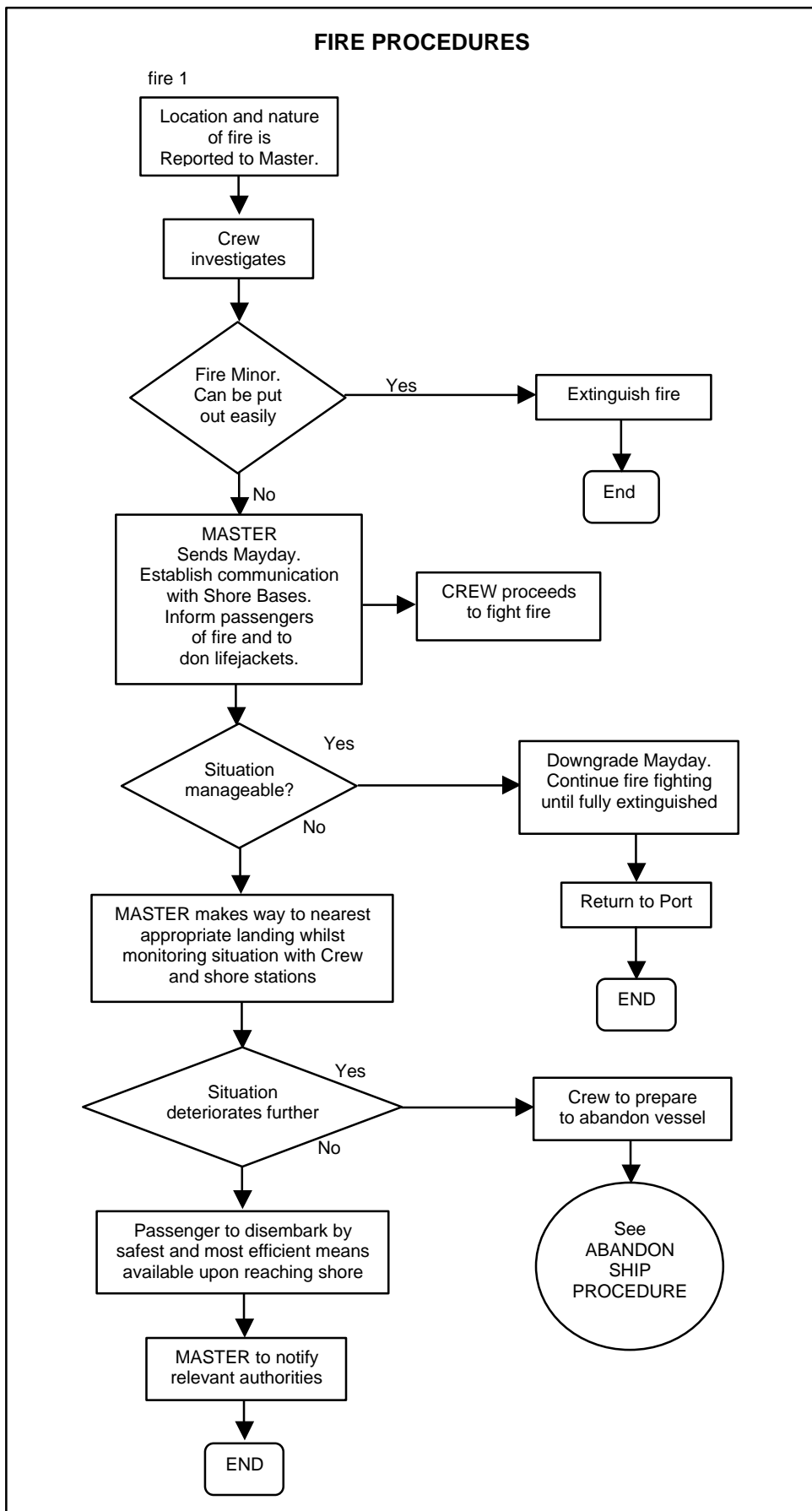
- 5.1 On 22 July 2003 the Commission recommended to the General Manager Fullers Group Limited that he:
- 5.1.1 ensure that all crews serving on the company's ferries are aware that, when investigating a suspected or indicated fire within an enclosed space, opening the access may rapidly exacerbate the fire endangering the crew, passengers and the vessel. The procedure in the operations manual should include a caution and a reminder that where a fixed fire fighting system is installed for the engine spaces, its use should be considered as a possible safer alternative to opening the space, especially in vessels with twin-engine spaces (023/03).
- 5.1.2 in consultation with the Safe Ship Management provider, amend the emergency fire procedures for each of the groups' ferries to better reflect the characteristics of each vessel, the use of available equipment on board and the safest possible method of fire fighting in the differing areas on board especially enclosed spaces (024/03).
- 5.2 On 22 July 2003 the commission recommended to the Director of Maritime Safety that he:
- 5.2.1 draft an amendment to Maritime Rule 40A for the Minister's consideration, that new restricted limit passenger ships with enclosed engine room spaces should be fitted with a fire detection system and a fixed fire extinguishing system in the engine spaces (025/03).
- 5.3 On 27 June 2003 the Director of Maritime Safety replied in part:
- 5.3.1 The Maritime Safety Authority is prepared to accept in principal the preliminary recommendation that new restricted limit passenger ships be fitted with a fire detection system and a fixed fire extinguishing system in the engine spaces. We shall consider the Commission's recommendation when reviewing the rule in the forthcoming (2003/04) financial year.

Please note that any proposed amendment to Rule Part 40A will need to be justified from a cost benefit perspective, and be subject to public consultation.

Approved for publication 30 July 2003

Hon W P Jeffries  
Chief Commissioner

# Appendix 1











**Recent Marine Occurrence Reports published by  
the Transport Accident Investigation Commission  
(most recent at top of list)**

- 02-206** bulk carrier, *Tai Ping*, grounding, Bluff Harbour, 8 October 2002
- 02-201** bulk log carrier, *Jody F Millenium*, grounding, Gisborne, 6 February 2002
- 02-204** coastal cargo ship *Kent*, collision and flooding, Wellington Harbour, 14 July 2002
- 02-203** tug *Purau* grounding, Lyttleton Harbour, 1 March 2002
- 01-214** coastal cargo ship *Kent* and passenger freight ferry *Arahura*, close-quarters incident, Tory Channel entrance, 14 September 2001
- 01-213** commercial jet boat *Shotover Jet 21*, engine failure and collision with rock face, Shotover River, Queenstown, 31 August 2001
- 01-212** fishing vessel *Hans*, sinking, Tory Channel, 19 August 2001
- 01-211** passenger ferry *Aratere*, lifeboat incident, Wellington, 6 August 2001
- 01-210** coastal cargo ship *Spirit of Enterprise*, grounding, Manukau Harbour, 28 July 2001
- 01-208** passenger ferry *Arahura*, machinery space flooding, Cook Strait, 7 June 2001
- 01-207** passenger charter vessel, *Osprey*, swamping and manoverboard, Uawa River bar, Tolaga Bay, 14 May 2001
- 01-206** liquefied petroleum gas (LPG) carrier, *Boral Gas*, grounding, Papakura Channel, Manukau Harbour, 15 April 2001
- 01-205** coastal cargo ship *Spirit of Enterprise*, sheer and contact with channel side, Port Otago, 15 March 2001
- 01-204** tug *Nautilus III*, capsize and sinking, Auckland Harbour, 9 March 2001
- 01-203** container vessel *Nicolai Maersk*, fatality during lifeboat drill, Auckland, 13 February 2001
- 01-202** commercial jet boat *Shotover 6*, engine failure and collision with river bank, Shotover River, Queenstown, 12 February 2001
- 01-201** commercial jet boat *Huka Jet 3*, rock strike and uncontrolled departure from river, Lake Aratiatia, Waikato River, Taupo, 25 January 2001

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