



Accident Report
Arahura & Santa Regina
Close Quarters Situation in Cook
Strait on 27 January 2005
Class B



REPORT NUMBER:05 3650
ARAHURA & SANTA REGINA
CLOSE QUARTERS SITUATION

On 27 January 2005, *Arahura* was in Cook Strait, about 3 nautical miles from the entrance of Tory Channel, on passage to Wellington. *Santa Regina*, bound for Picton, was steering a broadly reciprocal course to *Arahura* at a distance of approximately 10 nautical miles. Their relative closing speed was about 35 knots.

The Master, in conjunction with the Chief Engineer, other officers and crew, was overseeing an emergency steering drill in the vessel's starboard steering compartment.

Emergency steering drills had been practiced successfully on previous occasions. On this occasion, the Master decided to execute the drill using a different method. This involved the manual operation of the solenoid valves that controlled the vessel's emergency steering system. Previously, the crew had used a non-follow up switch. Neither the Master nor any of the officers or crew present had manually operated the solenoid valves before.

The solenoid valves, which turned the vessel's twin rudders, were marked the wrong way round as to which was port and starboard. This resulted in *Arahura* taking an unintentional turn to port instead of the planned alteration to starboard when helm was applied.

Arahura turned towards *Santa Regina*, which was passing *Arahura* close by on her port side. Before *Arahura's* crew was able to rectify the situation, *Santa Regina* had to alter course hard to starboard to keep clear. The closest point of approach (CPA) between the two vessels was 0.3 nautical miles.



Details of Vessel, Owner & Management, Classification & Crew:

Name of Vessel:	<i>Arahura</i>
Vessel Type:	Passenger Ro-ro
Port of Registry:	Wellington
Flag:	New Zealand
IMO No.:	8201454
Official No.:	394929
Built:	1983
Construction Material:	Steel
Length Overall (m):	148.37
Maximum Breadth (m):	20.25
Gross Tonnage:	13 621
Net Tonnage:	4 086
Propulsion:	4 diesel electric developing 10 400kW
Classification Society:	Det Norske Veritas
Accident Investigator:	David Billington



- **Owner Details**

Arahura is a New Zealand registered SOLAS Passenger Ship, owned by Toll (NZ) Consolidated Ltd (Toll) and operated by Interislander. Toll took over the operation of the ferry service in early January 2004 from Tranzrail.

- **Crew Details**

The ship's officers and crew were appropriately qualified and held the necessary certification as required by the Flag State.

Details of Vessel, Owner & Management, Classification & Crew:

Name of Vessel:	<i>Santa Regina</i>
Vessel Type:	Passenger Ro-ro
Port of Registry:	Wellington
Flag:	New Zealand
IMO No.:	8314562
Official No.:	876259
Built:	1985
Construction Material:	Steel
Length Overall (m):	133.00
Maximum Breadth (m):	22.52
Gross Tonnage:	14 588
Net Tonnage:	4 376
Propulsion:	Pielstick PC2.6 9 Cylinder
Classification Society:	Det Norske Veritas
Accident Investigator:	David Billington



- **Owner Details**

Santa Regina is a New Zealand Registered SOLAS Passenger Ship, owned by Strait Holdings Limited and operated by Strait Shipping Limited. She was built in 1985 as a passenger ferry. She previously operated between Corsica and France before being bought by Strait Holdings Limited and relocated to New Zealand in 2002.

- **Crew Details**

The ship's officers and crew were appropriately qualified and held the necessary certification.

NARRATIVE

Emergency Steering Drill on *Arahura*

The purpose of the drill was to ensure that ship's officers and crew were familiar with the operation of the emergency steering system. It was also undertaken to check that the procedures for changing from one steering system to another were accurate, practical, and well drilled.

The Master scheduled an emergency steering drill, as per the requirements of SOLAS Regulation 26, after the vessel had cleared Tory Channel. The test method the crew had used in the past was the non-follow up switch (NFU)¹.

On this occasion, the Master decided to drill the officers and crew using a different method. This required a crewmember to manually operate a directional control valve² (solenoid). This method of testing had not previously been practiced either by the Master or any of the officers or crew who were at the drill.

The drill team comprised the Master, First Officer (C/O), First Engineering Officer (1/E), Third Officer (3/O), Deck Cadet, and several other crewmembers. Their respective duties were as follows:

Master -	In overall charge of the drill. Present in the steering compartment.
C/O -	Brief and give instruction to team members. Present in the steering compartment.
1/E -	Brief team members on the technical/mechanical systems and switch the steering system from bridge control to emergency steering control. Present in the steering compartment.
3/O -	In charge of the vessel's safe navigation. Present on the bridge.
Deck Cadet -	Observe and follow instructions from the 3 rd Officer. Present on the bridge.
Several Deck Crew -	Follow instructions from the Master and C/O on the operation of the emergency steering system. Present in the steering compartment.



¹ NFU switch controls the directional control valve (known as a solenoid) once control of the steering had been selected for local operation within the steering flat. The NFU switch allows the operator to move the rudders to port or to starboard by manual operation of this switch. Therefore, if the operator, lets say, operates the switch and puts on 20° of starboard helm, the rudders will act accordingly and remain with 20° of starboard helm until the operator's intervention commands otherwise.

² A valve used to control the direction of flow of pressurised air or oil and so used to operate other devices such as a piston moving in a cylinder, which in turn controls the direction of hydraulic oil operating the steering gear.

THE INCIDENT

Events on board *Arahura* after clearing Tory Channel

At about 1428 hours New Zealand Standard Time (NZST) on 27 January 2005, *Arahura* cleared Tory Channel bound for Wellington. The vessel was on a heading of approximately 133°(T) at a speed over the ground (SOG) of approximately 20 knots. There were light variable winds, a calm sea and good visibility. The bridge team comprised the Master, 3rd Officer and Deck Cadet. The vessel was in automatic steering.

Once the vessel had cleared Tory Channel, the normal routine was for the Master to hand the con of the vessel to the Officer of the Watch (OOV). On this occasion, the 3rd Officer and the Deck Cadet were on watch. During the hand over, another vessel, which proved to be *Santa Regina*, was sighted at a distance of approximately 10 nautical miles.

Santa Regina was observed to be on a broadly reciprocal course. There were no other vessels in the vicinity.

After the hand over, the Master told the 3rd Officer that an emergency steering drill, which had been discussed briefly before the vessel's arrival in Picton, would start. The Master would have overall command of the drill.

The 3rd Officer stated he was not told the drill would involve a different method of testing the emergency steering gear.

Activity on *Arahura*'s bridge

After the Master had left, the 3rd Officer and Deck Cadet discussed the manner in which the emergency steering would be executed using the NFU switch and how this would impact³ on the normal steering operation of the vessel.

The 3rd Officer told the Deck Cadet that they needed to be mindful of the approach of *Santa Regina* and that any alteration of course, using the emergency steering system, must be to starboard to ensure a safe passing distance between the two vessels.

When *Santa Regina* was about 5 miles distant, the bridge team acquired her echo on the radar and ascertained the CPA would be about 0.6 nautical miles.

Commencement of the Drill

When the Master arrived in the starboard steering gear compartment, a crewmember told him the 1st Engineer was engaged on a priority work commitment in the engine room and could not be present.

The Master decided to commence the drill without the 1st Engineer. He gave instructions to the team members as follows:

³ Once the steering was transferred from the bridge to the steering flat, the bridge team were reliant on the actions of the team members in the steering compartment for the control of the vessel's heading. Those on the bridge could only regain control of the vessel's heading after the team in the steering flat transferred the steering back to the bridge.



First Officer -	Located at the control panel and tasked to switch over from bridge control of the steering to emergency steering control. He was also in charge of radio communications with the bridge.
A Crewmember -	Tasked with the manual operation of the solenoid valve on instruction from the Master. This crewmember stated he had not been given any training prior to the drill and did not fully understand the operation of the solenoid valve.
All other team members -	To witness the drill

The Chief Engineer decided to attend the emergency drill and offer any technical assistance that might be needed. He was surprised to see the Master present as this had never occurred before with other masters. When he saw they were intending to use the solenoid valve for the test and not the NFU switch he expressed his concern to the Master.

The Master told the Chief Engineer that the emergency steering drills on *Aratere*, which he had recently left, were practiced using the solenoid valves and he wanted the drill to be configured the same way on *Arahura*. The Master instructed the Chief Engineer to stand by the controls with the First Officer that would transfer the control of the steering from the bridge to the steering compartment.

The Master telephoned the Deck Cadet on the bridge and told him they were about to transfer the steering control from the bridge. The Deck Cadet said the gyro heading was 155°. He confirmed it was safe to transfer the vessel's steering. No mention was made of the approach of *Santa Regina* at this time.

The Master gave the order to transfer the vessel's steering to emergency control. This was actioned by the Chief Engineer.

At this stage, *Santa Regina* was about three nautical miles from *Arahura*, steering a broadly reciprocal course at a speed of 15 knots and bearing about two points on *Arahura's* port bow. The ARPA showed the CPA to have reduced slightly to about 0.5 nautical miles.

Once the steering had been transferred from the bridge, the Master ordered the crewmember, who was operating the solenoid valves, to steer 155°.

The crewmember checked the gyro repeater and noticed the vessel's heading was slowly altering to port of 155°. To counteract this, he applied what he thought was a small amount of starboard helm by activating the solenoid valve marked 'starboard'. In fact, the solenoid valves were marked the wrong way round and the crewmember was unknowingly applying port helm.

The 3rd Officer and Deck Cadet, who were monitoring the rudder angle indicator on the bridge, noticed the rudders were over to port despite the fact that starboard helm was needed to bring the vessel back on track. The 3rd Officer told the Deck Cadet to contact the steering compartment; inform them of their error and to apply starboard helm.

The 3rd Officer did not consider there was any cause for concern with the near approach of *Santa Regina*. He assumed the drill team would realise their mistake and put the rudders to starboard. At this stage, *Santa Regina* was about 1 nautical mile distant from *Arahura* and bearing fine on the port bow. Their closing speed was about 35 knots, equating to a distance of 1 nautical mile being covered about every 1¾ minutes.

The Deck Cadet told the Master that the rudders had gone to port and emphasised the need for starboard helm to be applied. As before, there was no mention of the near approach of *Santa Regina*.



The Master then ordered the crewmember to apply starboard helm. From the Master's position at the telephone, neither the crewmember nor the gyro repeater could be seen.

The crewmember moved to manually operate the solenoid valve marked 'starboard' again and applied a larger amount of what he believed to be starboard helm.

When the 3rd Officer saw that the angle of the rudders had moved further to port, he immediately told the Deck Cadet to inform the Master of their error; that a close quarters situation was developing with ***Santa Regina*** and the consequent need to transfer the steering back to bridge control.

Immediately upon being informed of the close quarters situation, the Master ordered the crewmember to put the helm amidships.

The crewmember said the solenoid valve had stuck and that he was unable to put the rudders amidships as ordered. By now, ***Arahura*** was swinging rapidly to port in the direction of ***Santa Regina***.

The Master told the Deck Cadet they had problems in the steering flat and that steering control would be transferred to the bridge immediately. This was actioned very shortly afterwards.

The Bridge Team on *Santa Regina*

The Master and OOW were plotting ***Arahura*** on the ARPA radar. They realised there was a problem after observing her unexplained course alteration to port. At this time, ***Arahura*** was approximately 0.4 nautical miles distant. It was the evidence of the Master of ***Santa Regina*** that data from their ARPA radar predicted a very close quarters situation. Accordingly, the Master immediately put the helm hard to starboard to turn away.

Communications Between *Arahura* & *Santa Regina*

The Master of ***Santa Regina*** received a radio call on VHF channel 16 from the 3rd Officer on ***Arahura***. He was told they were experiencing steering difficulties. The Master told the 3rd Officer they had executed a turn to starboard and asked whether any assistance was required.

The 3rd Officer informed the Master of ***Santa Regina*** that they had regained full control of the steering, and would continue the turn to port. Both vessels passed each other with a CPA of about 0.3 nautical miles.

On the instructions of Strait Shipping, the incident was reported by the Master of ***Santa Regina*** to the Maritime Safety Authority (MSA) the day after the incident.

The MSA did not receive a report, verbal or written, from the Master of ***Arahura*** or the management of Interislander.



FINDINGS

On 2 February 2005, the Investigator commenced an investigation and information was subsequently obtained from:

- The Master of ***Santa Regina***
- The Master of ***Arahura***
- The Chief Engineer of ***Arahura***
- The OOW aboard ***Arahura***
- The Management of Interislander

Active Failures

- The Master of ***Arahura*** did not hold a prior meeting with the senior engineering officers to discuss the technical aspects of the drill.
- The Master did not inform the drill team or bridge that the execution of the drill would involve a different test method.
- The Master did not hold a pre-planning meeting to discuss the drill and how it would differ from the test method that had been used previously.
- The crewmember operating the solenoid valves had not been given any training before the drill. Further, he did not have a clear understanding of what the solenoid valves actually did.
- The bridge team should have informed the Master earlier about the near approach of ***Santa Regina***.



Latent Failures

- The solenoid valves were marked the wrong way round, such that the port solenoid was marked 'starboard' and the starboard solenoid was marked 'port'. Engineering staff did not know how this had arisen. However, a Technical Manager from Interislander stated that the valve had been removed for overhaul at a previous dry-docking and may have been re-marked incorrectly. He stated the valves would be removed and re-marked in the correct position.

Reporting of Accidents, Incidents & Mishaps Under the Maritime Transport Act 1994 (MTA)

Under section 31 of the MTA 1994, the primary responsibility for reporting accidents incidents and mishaps, as soon as practicable to the MSA, rests with a Master but, if he/she is unable to do so, due to injuries, death or other good reason, this has to be done by the operator of the vessel.

In the opinion of the Investigator, this incident met the definition of an incident as set out in New Zealand Maritime Rule Part 73 - Log Books, and under Section 2 - Interpretation, of the Maritime Transport Act 1994 namely, being:

"Incident means any occurrence, other than an accident that is associated with the operation of a ship and affects or could affect the safety of operation".

Evidence of the Master of *Santa Regina*

After the incident, the Master of *Arahura* told the Master that he would be reporting the matter.

The Master said that he would not be sending a report to the 'relevant authorities' (MSA), as there was no doubt they would be in contact with him, due to the serious nature of the incident. This was based on the assumption that the Master of *Arahura* would report the incident to the MSA, who in turn would contact the Master as part of their investigation.

However, when the Master informed the management of Strait Shipping about the incident the following day, he was told to fax MSA a copy of form 12307⁴ with details of the incident.

Evidence of the Master of *Arahura*

The Master recalled saying to the Master of *Santa Regina* that he would be reporting the incident to the company. He completed a company Occurrence Reporting Form, which he sent to Interislander's office in Wellington. He also tried to call the Operations Manager of Interislander. However, there was no reply and he left a message. The Master stated it was company practice for masters to report accidents and incidents to the Operations Manager, who would then decide if the accident or incident should be reported to the MSA. The Master was, however, aware of his personal responsibility, under the MTA, to report accidents and incidents to the MSA.

The Master considered that this incident was reportable to the MSA because *Santa Regina* had to take avoiding action to prevent a close quarters situation.

Evidence of the Officer of the Watch on *Arahura*

The OOW stated that he discussed the incident with the Master and they completed the company Occurrence Reporting Form.

At Wellington, the Operations Manager of Interislander attended the vessel. The OOW told him of his concerns about the close quarters situation and that it was an unpleasant experience. He remembered telling him they had come within three to four cables of *Santa Regina*, and that in his opinion this was far too close under the circumstances.

Evidence of the Management of Interislander

Within 24 hours of being assigned to the case, the MSA Investigator contacted the Operations Manager of Interislander. The Investigator asked him if he was aware of the incident and, if so, why it had not been reported to the MSA. In response the Operations Manager stated that he was aware of the incident but did not consider it to be reportable. The Investigator told the Operations Manager that the Master of *Santa Regina* had reported the incident to the MSA, because he had had to take avoiding action to prevent a close quarters situation.

The Operations Manager replied that it was nothing more than a storm in a tea cup, or words to that effect, and that both vessels did not come within three nautical miles of each other.

The Chief Investigator of Accidents (CIA) made a follow up call to clarify the Operations Manager's position regarding the non-reporting of the incident. The Operations Manager re-iterated to the CIA, in the presence of the Investigator, his earlier comment that this was not a reportable incident as both vessels were three nautical miles apart.

⁴ This is a designated form produced by the MSA for the reporting of accidents and incidents by commercial vessels.



SAFETY RECOMMENDATIONS

It is recommended that:

- A. Interislander confirms in writing to Maritime New Zealand that the solenoid valves are marked correctly for safe operation when testing the emergency steering gear on **Arahura**.
- B. Interislander include in the ISM documentation of all their vessels, documented procedures that require all masters to conduct a preliminary safety briefing involving all participants engaged in emergency drills
- C. Maritime New Zealand send letters of censure to the Operations Manager of Interislander and the Master of **Arahura** for failing to report this incident to the MSA, as it then was.

Since the incident, the management of Toll/Interislander have conducted the following corrective actions:

1. The Master of **Arahura** has been informed that he should have notified Maritime NZ if he thought the incident was reportable to it, in line with Interislander's fleet memorandum #80, issued on 16 November 2004. He has also been reminded that in future, he is responsible for following the procedure for reporting incidents in line with Interislander Fleet Memorandum #86, issued on 12 March 2005, which was produced in consultation with Maritime New Zealand.
2. The labels on the steering gear solenoid valves have been placed the correct way.
3. The Interislander internal report on this incident has been circulated to the fleet. The report instructs all masters to conduct a risk assessment and put in place preventative measures to mitigate identified risks before undertaking non routine activities such as the drill that led to this incident.



Addendum to the Report

On 6 July, the Acting Director of Maritime New Zealand wrote to the management of Toll/Interislander to make it clear that all accident, incidents and serious harm injuries were to be reported to Maritime NZ as soon as practicable after the event. The Acting Director made it clear that this was a final warning and where there was any failure to report in future, a Master could expect to be prosecuted and the company could also be prosecuted under the vicarious liability provisions of the Maritime Transport Act 1994.

The Acting Director also made the decision not to proceed with Recommendation C above. This decision took into account the distribution of the above letter; amendments that have been made to company practices to ensure that all accidents/incidents were reported to Maritime New Zealand as soon as practicable after the event; and that current practice evidenced that masters were implementing the changes made.

Similar letters were sent to the Merchant Service Guild and the masters of other New Zealand vessels to ensure they were aware of their obligations to report accidents, incidents and serious harm injuries under the Maritime Transport Act 1994.