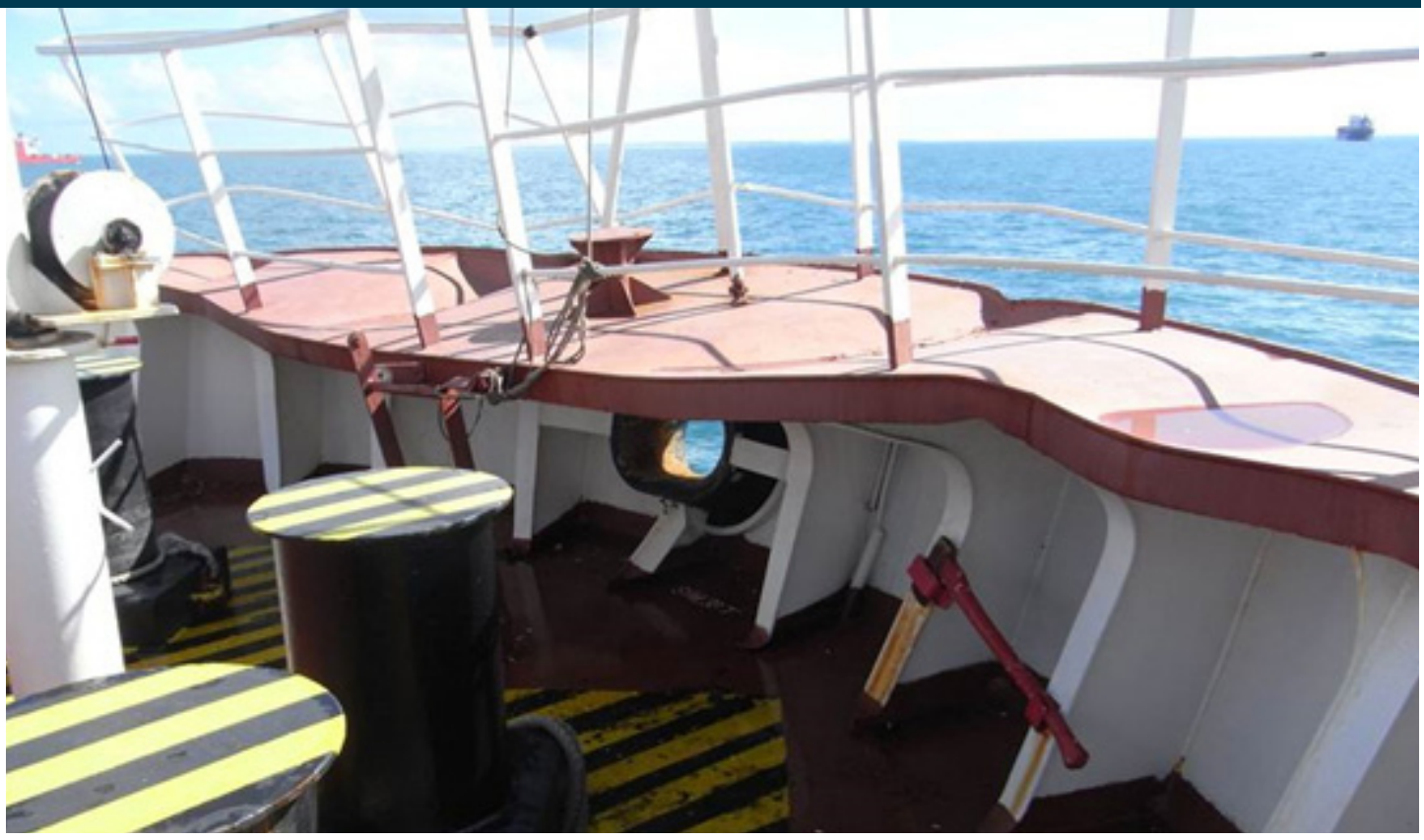
Australian Government
Australian Transport Safety Bureau

Collision between *Royal Pescadores* and *Da Heng Shan* at anchor

Gage Roads Anchorage, Fremantle, Western Australia | 8 May 2014



Investigation

ATSB Transport Safety Report
Marine Occurrence Investigation
308-MO-2014-003
Preliminary – 27 August 2014

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Published by: Australian Transport Safety Bureau
Postal address: PO Box 967, Civic Square ACT 2608
Office: 62 Northbourne Avenue Canberra, Australian Capital Territory 2601
Telephone: 1800 020 616, from overseas +61 2 6257 4150 (24 hours)
Accident and incident notification: 1800 011 034 (24 hours)
Facsimile: 02 6247 3117, from overseas +61 2 6247 3117
Email: atsbinfo@atsb.gov.au
Internet: www.atsb.gov.au

Addendum

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The occurrence

The information contained in this preliminary report is released in accordance with section 25 of the Transport Safety Investigation Act 2003 and is derived from the ongoing investigation of the occurrence. Readers are cautioned that new evidence will become available as the investigation progresses that will enhance the ATSB's understanding of the accident as outlined in this preliminary report. As such, no analysis or findings are included in this report.

On 28 April 2014, the 148 m geared bulk carrier *Royal Pescadores* (Figure 1) anchored at Kwinana 'No 5' anchorage, about 4 miles from Fremantle Port (Figure 2). While at anchor, the ship's cargo holds were surveyed and found to be unfit for the carriage of its next cargo.

Figure 1: *Royal Pescadores*

Source: ATSB

At about 1755[1] on 30 April, *Royal Pescadores* anchor was weighed and the ship proceeded to a berth in the Fremantle inner harbour. By about 1852, the ship was all fast alongside and, with shore side assistance, the ship's crew began to descale and clean the holds.

On 2 May, an Australian Maritime Safety Authority (AMSA) surveyor boarded the ship to conduct a Port State Control (PSC) inspection. On completion of the inspection, the surveyor detained the ship because of multiple International Safety Management (ISM) Code deficiencies. All of the deficiencies had to be rectified and re-inspected by an AMSA surveyor before the ship would be permitted to leave port limits.

On 6 May, cleaning of the holds was completed. Fremantle Ports then instructed *Royal Pescadores*' master to depart the berth and proceed to Gage Roads 'A' Anchorage (Figure 2) while waiting for further loading instructions.

At about 2112, *Royal Pescadores* was anchored at Gage Roads 'A' anchorage and the port anchor was brought up with 6 shackles[2] of cable in the water.

At about 0800 on 7 May, the 106 m asphalt / bitumen tanker *Da Heng Shan* (Figure 3) anchored in Gage Roads 'B' anchorage, about 0.5 miles[3] east of *Royal Pescadores*.

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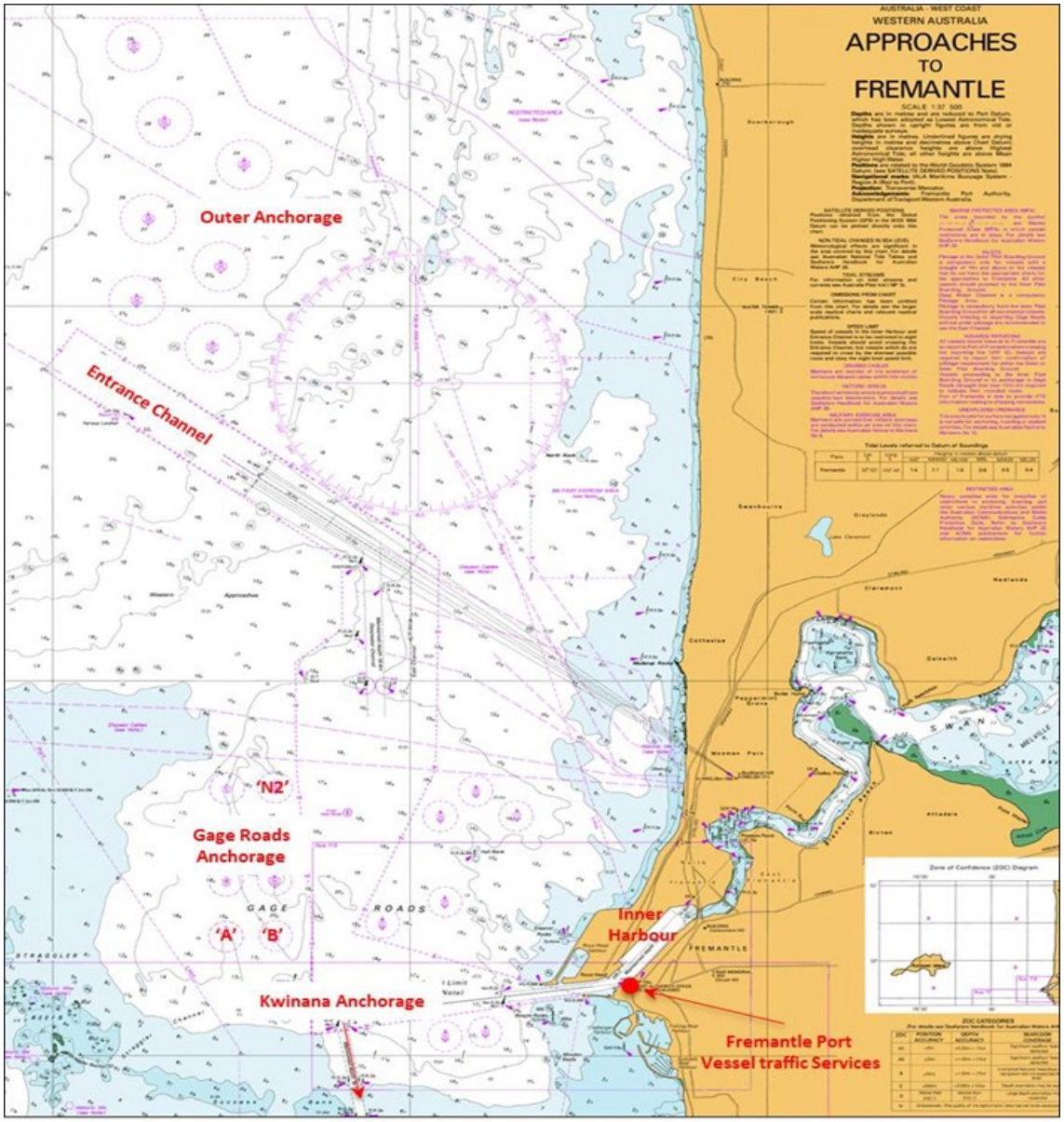
1 All times referred to in this report are local time, Coordinated Universal Time (UTC) + 8 hours

2 One shackle equals 90 feet or 27.43 m

3 A nautical mile of 1,852 m

Figure 2: Gage Roads Anchorage



Source: Australian Hydrographic Service

Figure 3: *Da Heng Shan*

Source: ATSB

At about 0300 on 8 May, the Fremantle Vessel Traffic Service (VTS) recorded the weather as stormy conditions with a wind speed of 21 knots from the west-northwest.

At about 0335, a bulk carrier anchored at Gage Roads 'N2' anchorage started to drag its anchor. VTS advised the ship's master to weigh anchor and re-position in 'N2' anchorage. Later in the morning, the planned inbound pilotage of a ship was cancelled due to the deteriorating weather conditions.

At about 0500, *Royal Pescadores* port anchor cable began to pay out. However, this was not observed by the officer of the watch (chief mate).

At about 0534, a squall (wind speeds of up to 50 knots) moved through Gage Roads anchorage. The increasing noise from the wind and rain woke *Royal Pescadores*' master. He telephoned the bridge and asked about the ship's position. The chief mate informed him that the ship was holding position.

At about 0535, *Da Heng Shan*'s officer of the watch (chief mate) observed on the radar that *Royal Pescadores* was dragging its anchor towards his ship. He tried to contact *Royal Pescadores* by VHF radio on channels 12 and 16, but received no answer. He then operated the ship's whistle in an attempt to alert the watchkeeper on board *Royal Pescadores*, telephoned the ship's master and operated the general alarm.

Shortly afterwards, *Royal Pescadores*' chief mate realised that the ship was dragging its anchor at a speed of about 1.5 knots. He then called the master to inform him. The master immediately went to the bridge and announced over the public address system that all crew should go to their mooring stations. He then told the chief mate to go to the forecastle.

When the chief mate arrived on the forecastle, he saw that the port anchor had been lost. He informed the master and then prepared the starboard anchor for letting go.

Meanwhile, *Da Heng Shan*'s master ordered his chief mate to proceed to the forecastle and veer[4] more cable out on the starboard anchor.

At 0537, VTS contacted *Royal Pescadores* to relay *Da Heng Shan's* broadcast about its dragging anchor.

At 0540, VTS contacted *Royal Pescadores* again and asked the master to heave in the anchor immediately and take action to avoid *Da Heng Shan*. Shortly after, *Royal Pescadores*' master contacted VTS to acknowledge the request.

At about 0545, *Royal Pescadores*' chief mate let go the starboard anchor.

At about the same time, *Da Heng Shan*'s main engine was started and the chief mate began to veer more cable on the port anchor. The master used the main engine to sheer[5] the ship to port in an attempt to manoeuvre it away from the approaching *Royal Pescadores*.

Shortly afterwards, *Da Heng Shan*'s chief mate retreated from the forecastle as *Royal Pescadores* closed on the ship's bow. At 0548, *Royal Pescadores*' starboard quarter collided with *Da Heng Shan*'s bow.

About a minute later, *Royal Pescadores*' starboard quarter collided with *Da Heng Shan* for a second time.

At about 0551, *Royal Pescadores*' main engine was started and the master ordered slow ahead. He then began to dredge[6] the starboard anchor, clearing *Da Heng Shan*.

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4 To pay out anchor cable under power using the windlass.

5 When applied to a vessel at anchor, sheer is the angular movement of the vessel about the hawse pipe point. It can be deliberately produced by applied helm to port or starboard.

6 A dredging anchor will hold the bow steady while allowing a ship to move forward or aft. The ship's pivot point moves to the position of the hawse pipe and, to overcome the anchor's drag, propulsive power is used giving good steering at low speed. The intention is for the anchor to drag and not to dig in

Royal Pescadores' master reported to VTS that the ship had lost its port anchor. VTS then advised the master to proceed to an outer anchorage and await further instructions.

At about 0900, *Royal Pescadores*' starboard anchor was let go in the Outer Anchorage and the ship was brought up to anchor with 8 shackles of cable in the water.

Context

Royal Pescadores

At the time of the incident *Royal Pescadores* was registered in Panama, classed with Nippon Kaiji Kyokai (Class NK) and managed by Shih Wei Navigation, China.

The ship was crewed by 20 Chinese and Burmese nationals all of whom were appropriately qualified for the positions they held on board the ship.

The master had 21 years of seagoing experience, of which the last 5 had been in command of this type of ship. He had been on board *Royal Pescadores* for about 2 months.

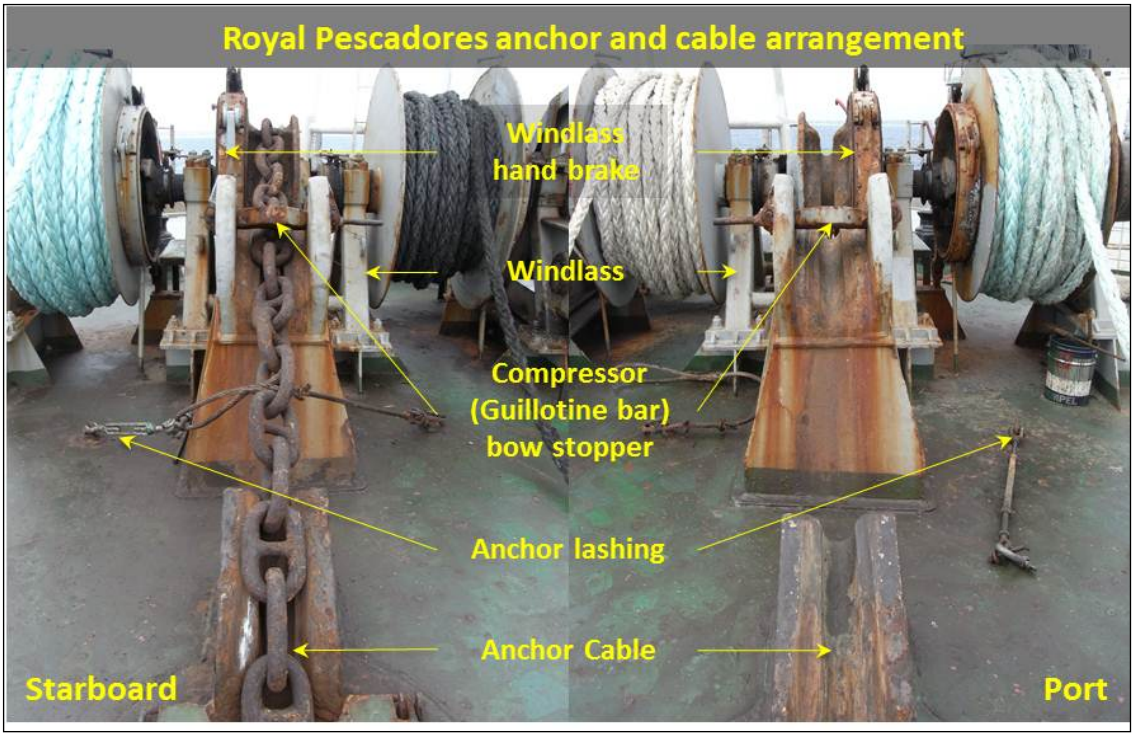
Windlass and Anchoring equipment

Royal Pescadores was fitted with two 4.89 tonne stockless anchors, each attached to10 shackles of 54 mm diameter anchor cable.

The bitter end[7] of each anchor cable was secured to the ship by a clench system inside the chain locker. A forged steel fitting was welded to the bulkhead and an anchor cable retaining pin was passed through one side of the fitting through an open cable link of the cable and through the other side of the fitting. A split pin was inserted in the retaining pin to prevent its accidental removal.

The anchor cable passed up the spurling[8] pipe, over the windlass gyspy[9] and through the hawse[10] pipe over the side of the ship (Figure 4).

Figure 4: Royal Pescadores forecastle head anchor and cable arrangement



Source: ATSB

7 The bitter end is the inboard end of the anchor cable that is secured to a strong point.

8 The cable passes through the spurling pipe from the windlass to the chain locker.

9 The vertical wheel on the windlass which the cable passes over. The cable is held in segments of the wheel known as the snug. The gypsy is held by the clutch plate (when in gear) or by the brake (when about to be let go).

10 The section of the ship's bow through which the anchor cable passes through from the windlass to overboard.

The incident

Sometime between 0500 and 0530 on 8 May 2014, *Royal Pescadores*'s port anchor windlass cable guillotine bar securing pin worked free and the bar opened. In the prevailing conditions, the windlass brake alone was not sufficient to hold the port anchor in place.

As a result, the anchor cable paid out until it was being held by the bitter end. At about 0535, the bitter end was ripped out as a result of the strain placed on it and the anchor and cable were lost overboard.

With no holding capacity, the ship turned beam on to the wind and began to drift astern at a rate of about 1.5 knots towards *Da Heng Shan*. At 0548, *Royal Pescadores*' starboard quarter collided with *Da Heng Shan*'s bow.

Investigation activities

The investigation is ongoing and will focus on determining:

- how the port anchor paid out to the bitter end despite securing arrangements in place
- the on board maintenance of *Royal Pescadores'* anchoring equipment
- the anchor watch arrangement on board the *Royal Pescadores*
- monitoring of the ships position at anchor
- the role of VTS in the monitoring of ships within port limits during periods of deteriorating weather.

General details

Occurrence details

Date and time:	8 May 2014 – 0548 UTC + 8 hours	
Occurrence category:	Incident	
Primary occurrence type:	Collision	
Location:	Gage Roads Anchorage 'B', Fremantle, Western Australia	
	Latitude: 32° 03' S	Longitude: 115° 44' E

Ship details

Name	*Royal Pescadores*
IMO number	9151400
Call sign	3FIJ7
Flag	Panama
Classification society	Nippon Kaiji Kyokai
Ship type	Geared bulk carrier
Builder	Shikoku Dockyard, Japan
Year built	1997
Owner(s)	Royal Pescadores
Operator	Shih Wei Navigation
Manager	Shih Wei Navigation
Gross tonnage	11,246
Deadweight (summer)	18,369 t
Summer draught	9.12 m
Length overall	148.170 m
Moulded breadth	22.80 m
Moulded depth	12.20 m
Main engine(s)	B&W 7S35MC
Total power	4,891 kW
Speed	16.10 knots

Name	*Da Heng Shan*
IMO number	9564815
Call sign	VRFX9
Flag	Hong Kong
Classification society	Bureau Veritas
Ship type	Asphalt/Bitumen Tanker
Builder	China Gezhouba Group
Year built	2009
Owner(s)	Max Prime International
Operator	Tianjin Southwest Maritime
Manager	Tianjin Southwest Maritime

Gross tonnage	5,493
Deadweight (summer)	6,193 t
Summer draught	6.50 m
Length overall	106.84 m
Moulded breadth	17.60 m
Moulded depth	10.10 m
Main engine(s)	Yanmar 8N330-EN
Total power	3,310 kW
Speed	13.40 knots

Sources and submissions

Sources of information

On 8 May 2014, investigators from the Australian Transport Safety Bureau (ATSB) attended *Da Heng Shan* and *Royal Pescadores* while the ships were at anchor off Fremantle, Western Australia. The master and directly involved crew members from both ships were interviewed and each provided their account of the incident. In addition, Fremantle Ports Deputy Harbour Master and the duty VTS officer were interviewed and each provided their account of the incident. Photographs of the ship and copies of relevant documents were obtained, including log books, statutory certificates, reports, manuals and procedures.

Australian Transport Safety Bureau

The Australian Transport Safety Bureau (ATSB) is an independent Commonwealth Government statutory agency. The ATSB is governed by a Commission and is entirely separate from transport regulators, policy makers and service providers. The ATSB's function is to improve safety and public confidence in the aviation, marine and rail modes of transport through excellence in: independent investigation of transport accidents and other safety occurrences; safety data recording, analysis and research; fostering safety awareness, knowledge and action.

The ATSB is responsible for investigating accidents and other transport safety matters involving civil aviation, marine and rail operations in Australia that fall within Commonwealth jurisdiction, as well as participating in overseas investigations involving Australian registered aircraft and ships. A primary concern is the safety of commercial transport, with particular regard to fare-paying passenger operations.

The ATSB performs its functions in accordance with the provisions of the *Transport Safety Investigation Act 2003* and Regulations and, where applicable, relevant international agreements.

Purpose of safety investigations

The object of a safety investigation is to identify and reduce safety-related risk. ATSB investigations determine and communicate the factors related to the transport safety matter being investigated.

It is not a function of the ATSB to apportion blame or determine liability. At the same time, an investigation report must include factual material of sufficient weight to support the analysis and findings. At all times the ATSB endeavours to balance the use of material that could imply adverse comment with the need to properly explain what happened, and why, in a fair and unbiased manner.

Developing safety action

Central to the ATSB's investigation of transport safety matters is the early identification of safety issues in the transport environment. The ATSB prefers to encourage the relevant organisation(s) to initiate proactive safety action that addresses safety issues. Nevertheless, the ATSB may use its power to make a formal safety recommendation either during or at the end of an investigation, depending on the level of risk associated with a safety issue and the extent of corrective action undertaken by the relevant organisation.

When safety recommendations are issued, they focus on clearly describing the safety issue of concern, rather than providing instructions or opinions on a preferred method of corrective action. As with equivalent overseas organisations, the ATSB has no power to enforce the implementation of its recommendations. It is a matter for the body to which an ATSB recommendation is directed to assess the costs and benefits of any particular means of addressing a safety issue.

When the ATSB issues a safety recommendation to a person, organisation or agency, they must provide a written response within 90 days. That response must indicate whether they accept the recommendation, any reasons for not accepting part or all of the recommendation, and details of any proposed safety action to give effect to the recommendation.

The ATSB can also issue safety advisory notices suggesting that an organisation or an industry sector consider a safety issue and take action where it believes it appropriate. There is no requirement for a formal response to an advisory notice, although the ATSB will publish any response it receives.

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Enquiries 1800 020 616
Notifications 1800 011 034
REPCON 1800 011 034
Web www.atsb.gov.au
Twitter @ATSBinfo
Email atsbinfo@atsb.gov.au

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