



Australian Government
Australian Transport Safety Bureau

Crew member fatality on board *Toucan Arrow*

Portland, Victoria | 7 October 2013



Investigation

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Addendum

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Safety summary

What happened

On 7 October 2013, a crew member on board the general cargo ship *Toucan Arrow* was crushed between the ship's aft gantry crane and a cargo hold hatch lid while the crane was being prepared for cargo loading operations in Portland, Victoria.

First aid treatment was provided to the injured crew member on-site and he was transported by ambulance to the local hospital where he died as a result of his injuries.

What the ATSB found

The ATSB found that the crew member did not comply with the ship's safe working procedures and did not ensure that the crane driver was advised and that the gantry crane's electrical power supply was isolated before he began working in the vicinity of the crane. The investigation also found that the audible and visual crane in motion warning devices were not fully operational and effective.

The ATSB further found that there was a lack of mapping information available to assist the emergency services 'triple zero' operator in providing the emergency responders with directions to a defined location within the port area. It was also found that the ambulance service had not ensured that its officers were familiar with the port area and the protocols for opening the locked port access gates.

What's been done as a result

Toucan Arrow's managers have updated the checklist titled 'Induction for new joiners' to ensure that all new crew members are informed of the precautions required when working on deck while the gantry cranes are in operation. Limit switches which detect the presence of a person on the cargo hatch ladder and stop the crane's travel have also been fitted to the gantry cranes.

The Port of Portland has changed its procedures and informed its tenants that all emergency services are to be met at the port gates and escorted to the scene of an emergency. The updated emergency response plan has been distributed to all port users including shipping agents and the ambulance service.

Marker signs are also being placed around the port. The location of each sign, along with its GPS co-ordinates has been provided to the Emergency Services Telecommunications Authority, the operator of the 'triple zero' phone service, to better direct emergency services to the scene or meeting point for further directions.

Ambulance Victoria has requested the Emergency Services Telecommunications Authority to change its procedures so that when an ambulance is tasked to the Port of Portland, a telephone call advising the port's emergency response controller is made.

Safety message

This accident highlights the importance of adhering to the requirements of on board safe working procedures, the effective assessment of risk and the implementation of appropriate risk controls.

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The occurrence

At 0748¹ on 7 October 2013, the 200 m geared general cargo ship *Toucan Arrow* (Figure 1) berthed at number five berth in Portland, Victoria.

At 0815, the crew began preparing the ship and its two gantry cranes for cargo operations. The aft gantry crane was moved forward from its parked position and was used to lift the number six cargo hold hatch lid and stack it on top of the number seven hatch lid.²

Figure 1: *Toucan Arrow* showing the gantry cranes



Source: ATSB

The second mate, who had been driving the aft gantry crane from the access platform position that was used when moving hatch lids (Figures 1 and 3), instructed the junior third mate to go to the driver's cabin (Figure 2). He was told to pick up the pulp spreader³ from number ten hatch lid and move it forward to number two hatch lid as it was to be attached to the forward gantry crane.

The junior third mate moved the spreader and then travelled the aft gantry crane back to a position above the number seven cargo hold. He then traversed the trolley out over the wharf and lowered the turntable to the wharf deck so that a shore supplied ingot spreader could be attached (Figure 2). The ship's assistant electrician and a seaman were on the wharf to connect the spreader.

By about 0950, the spreader was attached and the gantry crane was ready for use. The assistant electrician then returned on board the ship.

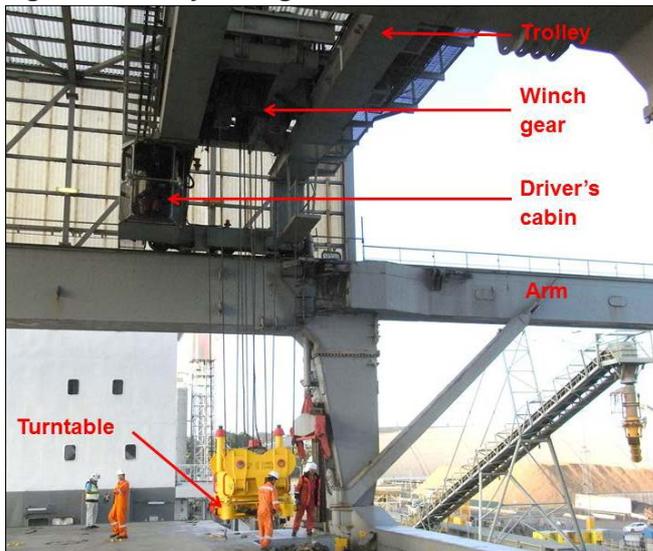
The junior third mate traversed the trolley of the aft gantry crane back to the centre line of the ship and then travelled the crane forward, so that it was above the open number six cargo hold. He then began to prepare the driver's cabin, ready for the stevedores to take over.

¹ All times referred to in this report are local time, Coordinated Universal Time (UTC) + 11 hours.

² *Toucan Arrow* has ten cargo holds numbered from forward to aft.

³ A spreader is an interchangeable frame that attaches to the turntable (a rotatable base) on the gantry's lifting platform. Each frame is designed to perform a specific duty such as lifting multiple packs of ingots or shipping containers.

Figure 2: Gantry arrangement



Source: ATSB

The third mate, who was walking aft from the forward gantry crane, called the junior third mate on the ultra-high frequency (UHF) radio and asked for the aft gantry crane to be travelled forward to pick up some air bags.⁴

A few moments later, at about 1000, the third mate was nearing the number six cargo hold when he saw the assistant electrician lying injured on the deck. He called the junior third mate and told him not to move the gantry crane as someone had been injured. He then used his radio to raise the alarm and advise the master that the assistant electrician had been badly injured.

The master mustered the crew to assist and they provided first aid at the scene. The assistant electrician was conscious, able to ask for water and was not complaining of any pain. He was placed in a stretcher and moved to the top of the gangway, ready for evacuation. The crew then continued to provide first aid.

At 1017, the ship's agent, who had arrived at the top of the gangway soon after the assistant electrician had been carried there, telephoned 'triple zero'⁵ and asked for immediate ambulance assistance.

At 1030, after a short delay gaining access through the locked port gates, an ambulance arrived at the wharf. The paramedic made his way on board the ship and commenced treating the assistant electrician with the help of the ship's crew. Communications with the assistant electrician were hampered by language difficulties, so one of the crew members attempted to translate.

At 1040, a second ambulance arrived at the wharf with a community ambulance officer⁶ and a paramedic on board. They made their way onto the ship and helped with the treatment of the assistant electrician.

At 1053, the assistant electrician was carried down the gangway and placed in an ambulance. At 1102, the ambulance departed for Portland Hospital, but it was delayed for a short period of time at the port gates while arrangements were made to open them.

At 1119, the ambulance arrived at the hospital. However, the assistant electrician died as a result of his injuries a short time later.

⁴ Air bags – Heavy duty inflatable bags used that take up the space between items of cargo to stop them shifting at sea.

⁵ Triple zero (000) is the telephone number for a single point of contact for all emergency services that can be used anywhere in Australia.

⁶ A person with first aid training who is not a paramedic and is on hand to assist the paramedic and drive the ambulance.

Context

Port of Portland

The port (Figure 3) is located about 300 km west of Melbourne, the capital of the State of Victoria. It is an outlet for the extensive agricultural and pastoral country of the western part of Victoria and also serves a large aluminium smelter and fertiliser plant. Fishing vessels also operate from the port.

Commodities exported through the port consisted mainly of a wide range of agricultural products, principally grain and livestock, as well as woodchips, logs and aluminium ingots. Imports include phosphate rock, alumina, liquid pitch, fertiliser products, petroleum, coke and general cargo.

Portland, with a population of about 25,000, is the oldest settlement in Victoria.

Figure 3: Port of Portland showing the berth and the port's main access point.



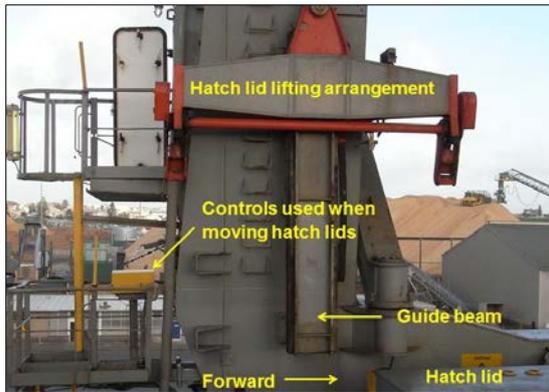
Source: Google Earth with annotations by ATSB

Toucan Arrow

Toucan Arrow was one of nine fifth-generation gantry crane sister ships that were designed to carry general cargo, bulk ore concentrates, ingots and containers.

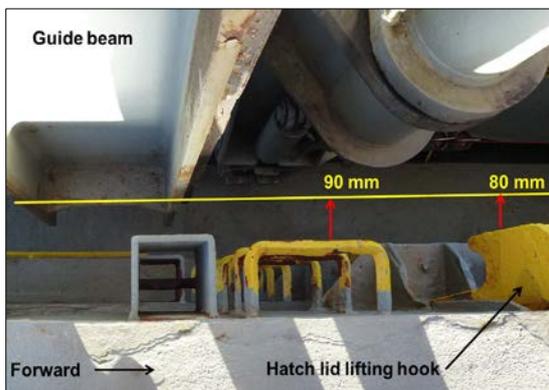
The ship had two 40 t safe working load gantry cranes. Located on each side of the gantry cranes were arms that swung out over the wharf, when unhoused, to allow the trolley, which housed the winch gear and driver's cabin, to travel out over the wharf (Figure 2). Deck mounted rails allowed the two gantry cranes to travel the length of the ship's main deck to access all cargo holds.

Figure 4: Hatch lifting assembly and guide beam shown next to a single stacked hatch lid



Source: ATSB

Figure 5: Guide beam shown next to double stacked hatch lid.



Source: ATSB

Attached to the two aft legs on each gantry crane was a separate, hydraulically operated, lifting arrangement (Figure 4) which allowed a hatch lid to be lifted and stacked on top of another hatch.

The design of the hatch lids and the gantry cranes was such that there was little clearance between the guide beam on the aft leg of the gantry cranes and fittings on the hatch lids. When the hatch lids were double stacked, this clearance was reduced further (Figure 5).

Each gantry crane was fitted with warning devices that operated automatically whenever the gantry crane travelled along the length of the deck.

Warning lights were fitted on all four legs and a siren was fitted on each of the two forward legs.

An emergency stop button was fitted to each leg and emergency stop pull wires were fitted along the braces that ran between the two legs.

Management and crew

At the time of this accident, *Toucan Arrow* was managed by Gearbulk Norway through their Singapore office. The ship had a crew of 24 Chinese nationals, including three trainees, all of whom were appropriately qualified for the positions they held on board the ship.

The master had 18 years of seagoing experience and had sailed as master since 2008. In July 2013, he joined *Toucan Arrow* for the first time. Previously, he had spent two contracts, a total of about 9 months, on board *Toucan Arrow's* sister ship *Penguin Arrow*.

In June of 2013, the assistant electrician left *Toucan Arrow* after having spent 12 months on board the ship as an electrical cadet. He then re-joined the ship in Shanghai, as the assistant electrician, in August of 2013.

The accident

There were no witnesses to the accident. However, the available evidence indicates that the assistant electrician was probably standing on the hatch access ladder when he was crushed between the hatch lid and the gantry crane guide beam as the crane travelled along the deck.

The investigators found a small piece of the assistant electrician's clothing stuck to the aft lifting hook of the number six hatch lid. At the time of the accident, this hatch lid was stacked on top of the number seven hatch lid. This indicates that the assistant electrician was near the top of the ladder at that time of the accident (Figure 6).

Figure 6: Likely position of the assistant electrician.



Source: ATSB

fans also masked most of the noise the gantry cranes made when travelling along the deck.

Therefore, it is possible that the assistant electrician did not hear the gantry crane move. Since the warning light at his location was not operating, he was not provided with any visual warning of the gantry crane's movement.

It is also unlikely that the gantry crane driver would have seen the assistant electrician on the ladder, as only his hard hat and shoulders would have been visible above the hatch lid and his location was behind the driver and outside his peripheral vision.

Furthermore, the injuries he suffered indicate that he was probably facing towards the hatch lid, before being forced off the ladder and trapped between the lifting hook and the passing gantry crane guide beam.

The investigation was unable to determine exactly what the assistant electrician was doing at the time of the accident.

However, a bag of electrical tools and a new warning light were found near the scene. It was later determined that the warning light fitted to that leg of the gantry crane was not operating. Therefore, it is likely that the assistant electrician was preparing to replace the faulty warning light.

During the investigation, it was noted that the warning sirens fitted to the forward legs of the gantry cranes could not be heard from the aft end of the cranes

The back ground noise of the gantry crane hydraulic cooling

Safety analysis

Safe working procedures

The Gearbulk Safety Information System (GSIS) contained procedures covering critical tasks that were performed on board *Toucan Arrow*. These procedures covered, amongst other tasks, the familiarisation of new crew members and contractors and included a permit to work system.

On board familiarisation

The on board familiarisation process included a generic familiarisation checklist for all new crew members, a job specific familiarisation checklist and a familiarisation checklist for travelling squads/contractors. These checklists were all completed by the assistant electrician after he re-joined the ship in Shanghai, in August 2013. He had also completed the on board training in relation to the operation (driving) of the gantry cranes.

The familiarisation process and the associated checklists covered an overview of the permit to work system and most areas of shipboard operations that were considered to be of high risk. However, the checklists did not make direct reference to the precautions required when working on the main deck while the gantry cranes were in motion. They also did not include the safety features that could be used to stop a gantry crane in an emergency.

The crew were exposed to the possibility of being crushed by a moving gantry crane when they worked on deck during crane operations. Hence, these risks should have been brought to their attention before they were permitted to work on deck.

Permit to work system

The ship's permit to work system included a set of permits, certificates and checklists for prescribed high risk tasks. These tasks included enclosed space entry, hot work, working at height, electrical isolation and working on deck during crane operations. It was also a requirement for the master to provide his permission before any maintenance work could be carried out on deck during crane and hatch cover operations.

It was the normal process for planned tasks to be discussed at the morning works meeting. At that meeting, any permit requirements were discussed and actioned. Where a task (or ad hoc job) was identified and carried out during that day, it was the responsibility of the person in charge to carry out a risk assessment (job safety analysis), identify what permits were needed and to comply with the required risk controls.

In the case of the faulty crane warning light, the task was not identified before the morning works meeting. Therefore, it was the assistant electrician's responsibility to carry out a risk assessment, identify what permits/checklists/certificates were required, comply with their requirements and implement the necessary risk controls.

However, while the assistant electrician may have carried out a risk assessment, he did not complete the required permits. He also did not tell anyone what he was intending to do and did not ask for the master's permission to work on deck while the cranes were being used. Furthermore, he did not ensure that appropriate risk controls, like isolating electrical power to the crane and advising the crane driver, were implemented before he commenced work.

Port access

The introduction of the International Ship and Port Security (ISPS) code has seen the introduction of fences and gates to secure Landside Restricted Zones (LRZ) of Australian ports. Modernization and commercial pressures have also seen the security of many facilities, including those in Portland, move from the gates to a centralised office. These changes have been aided by the use of closed circuit TV cameras and unmanned electronically operated gates.

In Portland, approved port users such as the emergency services, shipping agents and cargo transport operators have been issued with swipe cards which are used to open the gates to gain access to the LRZ.

Prior to this accident, an emergency response exercise had been held in the port. As a result of this exercise, the ambulance service was supplied with extra swipe cards. However, not all of the Portland based ambulance officers were advised that the cards had been supplied and how they operated.

The port authority had also offered the emergency services the opportunity to take familiarisation drives through the port area, with a port employee acting as a guide as required. The ambulance service had not taken up this opportunity.

Emergency response

When the Emergency Services Telecommunications Authority (ESTA) triple zero operator asked the agent for his location, the reply was 'berth five, Portland Harbour'. The operator could not identify this location on the mapping system, so the agent was asked for more information. The agent then described the location as 'Port of Portland'. The operator found the location of the port and then confirmed it by naming a nearby road. As the operator could not identify the exact location of the ship's berth within the port, the information that was provided to the emergency responders only referred to the general location of the port.

The ambulance officers who attended *Toucan Arrow* were not familiar with the port layout, the berth numbering arrangement or how to open the port access gates. They were also not aware that gate access swipe cards had been provided to the ambulance service.

When not met at the unmanned gate, as expected, the paramedic driving the first ambulance drove to a second gate and then a nearby wharf looking for the ship, before returning to the first gate. It was then that the gate was opened by a port officer who happened to be exiting the port at that time.

When exiting the port, the ambulance officers had to again wait while a port officer came to open the gate as they were not familiar with the port.

The attending ambulance officers were delayed for a short period of time on their arrival at the port and again on their exit because they were not provided with directions to a defined location within the port area and were not familiar with the port area and how to open the port access gates.

Port emergency procedures

The port's emergency procedures manual gave guidance to the port employees and tenants in relation to the various roles, responsibilities and required responses by the various parties to specific incident types. The aim of the procedures manual was to:

...provide clear and concise guidelines for the prevention of, and preparedness and response to emergencies, with due regard to safety, life, property, infrastructure and the environment, within the Port of Portland.

Copies of the manual were distributed to the tenants of the port and some emergency response services. However, the ambulance service and shipping agents operating within the port were not included in the distribution list.

According to the port emergency procedures manual, the following actions should have been taken following the discovery of the injured assistant engineer:

- Assess the immediate dangers
- Attend to human life in danger, assist disabled persons
- Call emergency services on 000 (or digital 112)

- Notify the Port Emergency Controller on ...
- Notify Office of Transport Security on ... if security related.
- Notify the Harbour Master
- Follow instructions of the Port Emergency Controller
- Preserve the scene for investigation

Similar instructions, relating to the requirements for notification in the event of an accident or incident on board a ship, were also included in the 'Application for Berth' document which was signed by the master and agent of each ship berthed in the port.

In this instance, the master and the agent should have acted in accordance with the requirements of the port emergency procedures and the 'Application for Berth'.

The port officer, who opened the gate to allow access to the ambulances, called the ship's agent and was informed that there had been an accident on board the ship involving a crew member who appeared to be in pain but that he should be 'okay'. Once the ambulances had been let into the port, the port officer returned to the port offices and advised the harbour master that a crew member had been injured on board *Toucan Arrow*.

The port's emergency procedures manual stated that 'any organisation or person working within the port area is required to immediately report' an incident that required, among other things, 'immediate medical treatment' or 'immediate hospital treatment as an inpatient'. Though the incident was reported upon the port officer's return to the office, it was not reported in a manner that allowed the port's emergency response controller to liaise with the emergency response services prior to them departing the port.

Communications

Prior to mobile telephones, the ship's very high frequency (VHF) radio, or a temporary landline run to the top of the gangway, was the usual means of communications, for both general traffic and emergencies, with the offices of the port management being the central point through which all communications passed.

With the proliferation of mobile telephones, the practice of communicating with a central point of contact has declined. It is now common that the reflex action of using a mobile telephone takes over, with the emergency services contacted directly from the scene of the accident or incident.

While this is understandable, indeed desirable, contacting the port's management is likely to be forgotten. As a result, the port's management would be left unaware that there is an emergency and therefore unable to assist the attending emergency services.

This is what occurred in this instance and, as a result, the port's management was not aware that paramedics would be attending and that there was a need to ensure that they could enter and exit the port.

Findings

On 7 October 2013, a crew member on board the general cargo ship *Toucan Arrow* was fatally injured when he was crushed between the ship's aft gantry crane and a cargo hold hatch lid while the crane was being prepared for cargo loading operations in Portland, Victoria.

The following findings are made with respect to the accident and should not be read as apportioning blame or liability to any particular organisation or individual.

Safety issues, or system problems, are highlighted in bold to emphasise their importance.

A safety issue is an event or condition that increases safety risk and (a) can reasonably be regarded as having the potential to adversely affect the safety of future operations, and (b) is a characteristic of an organisation or a system, rather than a characteristic of a specific individual, or characteristic of an operating environment at a specific point in time.

Contributing factors

- The assistant electrician did not comply with the requirements of the on board permit to work system. He did not gain the master's approval to work on deck during crane operations (an on board requirement) and he did not ensure that the gantry crane driver was advised and that the gantry crane's electrical power supply was isolated before he began working in the vicinity of the crane.

Other factors that increase risk

- **The gantry crane in-motion warning light nearest to the assistant electrician's location was not operating and the warning sirens were not audible from his location. As a result, he was not provided with either a visual or audible warning of the crane's movement. [Safety issue]**
- **The on board familiarisation process did not ensure that new crew members were informed of the precautions required when working on deck while the gantry cranes were in operation. [Safety issue]**
- **There was a lack of mapping information available to assist the 'triple zero' operator in providing the emergency responders with directions to a defined location within the port area. [Safety issue]**
- **Ambulance Victoria had not ensured that its officers were familiar with the port area and the protocols for opening the permanently locked port access gates. [Safety issue]**
- *Toucan Arrow's* master, the ship's agent and the port officer did not immediately report the accident in accordance with the requirements of the port's emergency procedures. As a result, the port's emergency response controller was not in a position to provide assistance to the ship's crew or the ambulance service.
- **The Port of Portland emergency procedures manual was not circulated to the ambulance service or the shipping agents operating in the port. [Safety issue]**

Safety issues and actions

The safety issues identified during this investigation are listed in the Findings and Safety issues and actions sections of this report. The Australian Transport Safety Bureau (ATSB) expects that all safety issues identified by the investigation should be addressed by the relevant organisations. In addressing those issues, the ATSB prefers to encourage relevant organisations to proactively initiate safety action, rather than to issue formal safety recommendations or safety advisory notices.

All of the directly involved parties were provided with a draft report and invited to provide submissions. As part of that process, each organisation was asked to communicate what safety actions, if any, they had carried out or were planning to carry out in relation to each safety issue relevant to their organisation.

Crane warning devices

Number:	MO-2013-010-SI-01
Issue owner:	Gearbulk Norway
Operation affected:	Marine - Shipboard operations
Who it affects:	All ship owners, operators and seafarers

Safety issue description:

The gantry crane in motion warning light nearest to the assistant electrician’s location was not operating and the warning sirens were not audible from his location. As a result, he was not provided with either a visual or audible warning of the crane’s movement.

Proactive safety action taken by: Gearbulk Norway

Action number: MO-2013-010-NSA-017

The faulty warning light was repaired before *Toucan Arrow* departed Portland and the volume of the warning sirens was subsequently adjusted.

Immediately after the accident, Gearbulk’s electrical superintendent attended a sister ship to investigate how best to install safety devices to prevent a similar re-occurrence. Limit switches have since been installed either side of pinch/crush points and connected into the emergency stop circuit. In the event of a person being on the ladder when the gantry crane travels, the limit switch will detect the presence of that person and immediately stop the gantry crane.

ATSB comment in response:

The ATSB is satisfied that the action taken by Gearbulk Norway adequately addresses this safety issue.

Current status of the safety issue

Issue status: Adequately addressed

Justification: The adjustment of the warning siren and the addition of the limit switches will provide an added level of protection over the crew inductions and will help prevent a re-occurrence.

Crew familiarisation

Number:	MO-2013-010-SI-02
Issue owner:	Gearbulk Norway
Operation affected:	Marine - Shipboard operations
Who it affects:	All ship owners, operators and seafarers

Safety issue description:

The on board familiarisation process did not ensure that new crew members were informed of the precautions required when working on deck while the gantry cranes were in operation.

Proactive safety action taken by: Gearbulk Norway

Action number: MO-2013-010-NSA-018

The ATSB has been advised that the checklist titled 'Induction for new joiners' has been updated to include the following two requirements;

Safety precautions on vessels with gantry cranes (dangers of crushing between hatches and crane/crane and railings/between wheels). Crew members are to be shown areas of special concern.

Emergency stop features on gantry cranes/jib cranes to be demonstrated by Electrical Officer or Chief Officer.

ATSB comment in response:

The ATSB is satisfied that the action taken by Gearbulk Norway adequately addresses this safety issue.

Current status of the safety issue

Issue status: Adequately addressed

Justification: The additions to the checklist will highlight the dangers associated with working in the vicinity of the gantry cranes.

Emergency response

Number:	MO-2013-010-SI-03
Issue owner:	Port of Portland and the Emergency Services Telecommunications Authority
Operation affected:	Marine: Shore-based operations
Who it affects:	Emergency service agencies

Safety issue description:

There was a lack of mapping information available to assist the 'triple zero' operator in providing the emergency responders with directions to a defined location within the port area.

Proactive safety action taken by: Port of Portland

Action number: MO-2013-010-NSA-019

On the 19 September 2013, prior to this accident, the Port of Portland met with the Emergency Services Telecommunications Authority (ESTA) to plan and map the placement of emergency markers (numbered green signs with instructions and locations printed on them) to be placed around the landside restricted zone and public areas of the port. The location of each sign, along

with its GPS co-ordinates, was to be entered into ESTA's computer systems so that emergency services could be better direct to the scene or meeting point for further directions.

This system was not in operation at the time of the accident as the works were not completed until 23 December 2013.

As a result of this accident, the Port of Portland has changed its procedures and informed its tenants that all emergency services are to be met at the port gates and escorted to the scene of the emergency.

ATSB comment in response:

The ATSB is satisfied that the action taken by the Port of Portland should adequately address this safety issue with respect to emergency services' operations within the port.

Current status of the safety issue

Issue status: Adequately addressed

Justification: The actions taken by the Port of Portland and ESTA, prior to and after the accident, will assist with the directing of all emergency services.

Proactive safety action taken by: Emergency Services Telecommunications Authority (ESTA)

Action number: MO-2013-010-NSA-020

Immediately following the incident, ESTA introduced a Common Place Name for the Port of Portland, which relies on a geographical location rather than a street address, into the ESTA CAD (Computer Aided Dispatch) system allowing verification to the primary gate.

Also, when an emergency marker at the Port of Portland is verified, the call taker at the ESTA call centre will automatically be prompted to call the port's emergency response controller on the 24 hour phone number.

ATSB comment in response:

The ATSB is satisfied that the action taken by the ESTA should adequately address this safety issue with respect to emergency services' operations within the port.

Current status of the safety issue

Issue status: Adequately addressed

Justification: The actions taken by the Port of Portland and ESTA, prior to and after the accident, will assist with the directing of all emergency services.

Ambulance officer familiarisation

Number:	MO-2013-010-SI-04
Issue owner:	Ambulance Victoria
Operation affected:	Marine: Shore-based operations
Who it affects:	All emergency response agencies

Safety issue description:

Ambulance Victoria had not ensured that its officers were familiar with the port area and the protocols for opening the permanently locked port access gates.

Response to safety issue by: Ambulance Victoria

Action number: MO-2013-010-NSA-021

At the time of this accident, Ambulance Victoria had an induction process in place for ambulance officers based in Portland. A4-sized coloured maps of the port detailing access points were also contained in the emergency management folders in the Portland and Heywood based ambulances. However, the officer who attended *Toucan Arrow* had not yet completed the full induction.

All officers based in Portland are being put through the induction process again. This induction will include familiarity with the Port of Portland and the information contained in the ambulance service's emergency management folders.

While the Port of Portland has provided access cards, Ambulance Victoria considers that it is impractical to hold cards for the variety of sites that may call on its services.

Ambulance Victoria has requested the Emergency Services Telecommunications Authority to change its procedures, so that when an ambulance is tasked to the Port of Portland a telephone call advising the port's emergency response controller is made. This will ensure that the port's emergency controller is aware of an incident thus ensuring access for the responding Ambulance Victoria resource.

ATSB comment in response:

The ATSB is satisfied that the action taken by Ambulance Victoria adequately addresses the safety issue with regard to familiarity with the port and gate access procedures.

Current status of the safety issue

Issue status: Adequately addressed

Justification: The actions taken by Ambulance Victoria in re-inducting the staff and the request for ESTA to notify the port's emergency response controller should prevent future delays in providing emergency medical aid within the port.

Port emergency plan

Number:	MO-2013-010-SI-05
Issue owner:	Port of Portland.
Operation affected:	Marine: Shore-based operations
Who it affects:	All port authorities

Safety issue description:

The Port of Portland emergency procedures manual was not circulated to the ambulance service or the shipping agents operating in the port.

Proactive safety action taken by: Port of Portland

Action number: MO-2013-010-NSA-022

The Port of Portland has provided copies of the emergency response plan to the regional headquarters and the local service centre of the ambulance service as well as the agents that service ships in Portland.

ATSB comment in response:

The ATSB is satisfied that the action taken by the Port of Portland should adequately address this safety issue with respect to emergency response operations within the port.

Current status of the safety issue

Issue status: Adequately addressed

Justification: All emergency services and shipping agents are now recipients of the emergency response plan.

General details

Occurrence details

Date and time:	7 October 2013 – 1000 ESuT	
Occurrence category:	Accident	
Primary occurrence type:	Fatality	
Location:	Portland, Victoria	
	Latitude: 38° 21.10' S	Longitude: 141° 37.11' E

Ship details

Name	<i>Toucan Arrow</i>
IMO number	9105023
Call sign	C6NR5
Flag	Bahamas
Classification society	Det Norske Veritas
Ship type	Geared general cargo
Builder	Dalian New Shipbuilding Heavy Industry
Year built	1996
Owner(s)	Gearbulk Shipowning
Ship Manager	Gearbulk
Technical Manager	Gearbulk Norway
Operators:	Gearbulk (UK)
Number of crew	24
Gross tonnage	35,998
Deadweight	55,918 t
Draught	13.518 m
Length overall	199.7 m
Moulded breadth	32.2 m
Main engine(s)	1 x B&W 6L60MC
Total power	11,520 kW @ 123 rpm
Speed	14.2 Knots
Damage:	Nil

Sources and submissions

Sources of information

On 7 October two investigators from the Australian Transport Safety Bureau (ATSB) attended *Toucan Arrow* while the ship was berthed in Portland, Victoria, and again on 8 October while the ship was berthed in Burnie, Tasmania. The master and directly involved crew members provided their account of the accident. Photographs of the ship and copies of relevant documents and records were also obtained.

During the course of the investigation further information was provided by Victoria Police, Australian Customs and Border Protection, Ambulance Victoria, the Emergency Services Telecommunications Authority (ESTA), Port of Portland, Inchcape Shipping and Gearbulk Norway.

Submissions

Under Part 4, Division 2 (Investigation Reports), Section 26 of the *Transport Safety Investigation Act 2003*, the ATSB may provide a draft report, on a confidential basis, to any person whom the ATSB considers appropriate. Section 26 (1) (a) of the Act allows a person receiving a draft report to make submissions to the ATSB about the draft report.

A draft of this report was provided to *Toucan Arrow*'s master, third mate and extra third mate, Gearbulk Norway, the Port of Portland, the Emergency Services Telecommunications Authority, Ambulance Victoria, Inchcape Shipping Services, the Australian Maritime Safety Authority, the Bahamas Maritime Authority, the Maritime Safety Authority of China, Victoria Police (Portland Branch) and the Victorian Coroner.

Submissions were received from the Port of Portland, the Emergency Services Telecommunications Authority, Ambulance Victoria, Gearbulk Norway, Inchcape Shipping Services, Victoria Police and Maritime Safety Authority China. The submissions were reviewed and where considered appropriate, the text of the report was amended accordingly.

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.

Australian Transport Safety Bureau

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Investigation

ATSB Transport Safety Report Marine Occurrence Investigation

Crew member fatality on board *Toucan Arrow*
Portland, Victoria, 7 October 2013

303-MO-2013-010

Final – 16 June 2014