



Office of the Chief Investigator
Transport and Marine Safety Investigations

**Marine Safety Investigation
Report No 2007 / 07**

Collision between
Livestock Carrier “MV BISON EXPRESS”
and Ore Carrier “MV PORTLAND”
Port of Portland
22 May 2007



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THE CHIEF INVESTIGATOR

The Chief Investigator, Transport and Marine Safety Investigations is a statutory position established on 1 August 2006 under Part V of the *Transport Act 1983*.

The objective of the position is to improve public transport and marine safety by independently investigating public transport and marine safety matters.

The primary focus of an investigation is to determine what factors caused the incident, rather than apportion blame for the incident, and to identify issues that may require review, monitoring or further consideration. In conducting investigations, the Chief Investigator will apply the principles of 'just culture' and use a methodology based on systemic investigation models.

The Chief Investigator is required to report the results of investigations to the Minister for Public Transport and / or the Minister for Roads and Ports. However, before submitting the results of an investigation to the Minister, the Chief Investigator must consult in accordance with section 85A of the *Transport Act 1983*.

The Chief Investigator is not subject to the direction or control of the Minister(s) in performing or exercising his or her functions or powers, but the Minister may direct the Chief Investigator to investigate a public transport safety matter or a marine safety matter.

1. EXECUTIVE SUMMARY

At about 1600¹ on 22 May 2007 the Manila registered livestock carrier MV Bison Express was departing K S Anderson (KSA) berth No.2 in the Port of Portland.

During the unberthing process the vessel experienced difficulty manoeuvring away from the berth. While the bow of the vessel moved away from the wharf the stern remained in close proximity to the wharf. The vessel continued to move forward until the starboard quarter came into contact with the grain loading crane, causing minor damage to the vessel and the crane.

The MV Bison Express then moved forward to the end of berth No.1 and the starboard quarter contacted the elbow of the wharf basin.

The vessel cleared the wharf basin and then collided with MV Portland which was berthed at the smelter berth causing damage to both vessels.

The investigation found that both the pilot and the master of the vessel had limited experience in their roles. The master / pilot information exchange about unberthing was not sufficiently comprehensive and the pilot did not take adequate account of the prevailing weather conditions when preparing for the unberthing of the vessel. The pilot made an error of judgement in not requiring tug assistance and the master made an error of judgement in not insisting on the use of a tug vessel to assist the unberthing operation.

The report recommends that the Port of Portland reviews the usage of tugs, the preparation of berthing and unberthing plans with vessel masters and ensures that pilots utilise the available weather information systems and are made aware of the local weather anomalies.

The report further recommends that the vessel managers ensure that the shipboard personnel are familiar with company procedures and audits are carried out to ensure that these procedures are followed. Also, that the Flag State ensures that the requirements of the International Safety Management (ISM) code are complied with before the issue of ISM certification.

¹ All times are denoted in Australian Eastern Standard Time.

2. CIRCUMSTANCES

2.1 The Incident

On 22 May 2007, at about 1600 the Manila registered livestock carrier MV Bison Express was scheduled to depart the Port of Portland. The vessel had loaded 286 breeding cattle and was proceeding to Fremantle to load further cargo.

The vessel was berthed starboard side alongside at berth No.2 of the KS Anderson (KSA) wharf (Appendix A) and moored with three head lines (bow lines), one forward breast line, two forward spring lines, three stern lines, one aft breast line and two aft spring lines.

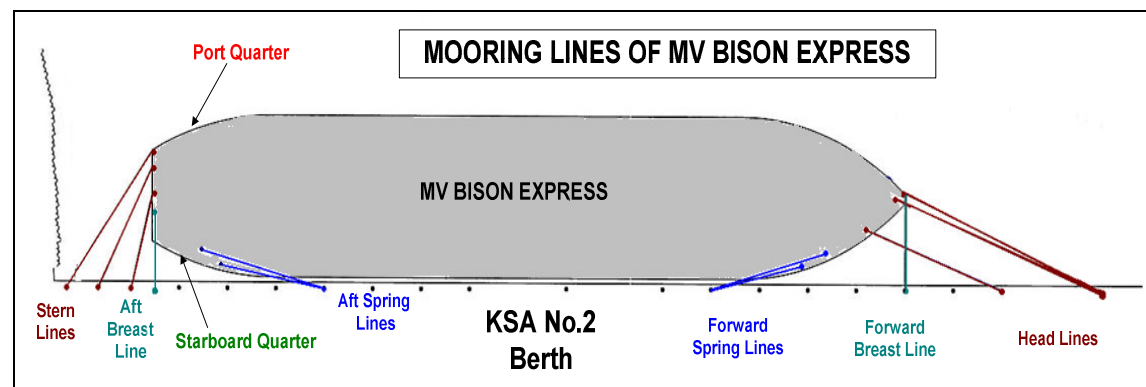


Figure 1. Mooring arrangement of MV Bison Express.

The pilot boarded the vessel at 1540, completed the pilotage checklist and advised the master to single up² and then cast off the lines.

For the departure from port the vessel's bridge team consisted of the pilot, the master, a deck rating manning the helm, and a mess-man who operated the bridge telegraph³ and maintained the bridge movement book. The vessel's chief officer was stationed forward and the second officer was stationed at the aft station.

The unberthing operation did not include the use of tug boats. Once the lines were cast off and clear the vessel's bow thruster was used to swing the bow away from the berth and the pilot ordered the rudder hard over to starboard and the main engine to slow ahead.

The vessel moved approximately 130 metres forward when the vessel's starboard quarter contacted the grain loader, resulting in minor damage to the vessel and the loader. The vessel continued a further 200 metres past No.1 berth when its starboard quarter contacted the end of the wharf and then another 330 metres before colliding with MV Portland which was berthed at the smelter berth.

The MV Bison Express then proceeded to an anchorage 1.2 nautical miles east-north-east of the main breakwater light. Later that day the vessel was sailed to No.5 berth to facilitate the repair of the damage to its hull.

There were no injuries to personnel or damage to the environment.

² All vessel mooring lines are cast off except for one spring line forward and one spring line aft.

³ The telegraph controls the engine movements.

2.2 The consequences

MV Bison Express

The starboard aft side of MV Bison Express sustained hull plate damage in two areas. A hole of up to one metre wide extended from the transom for approximately 5.5 metres to hull frame eight and a 4.5 metre rip from frames 11 to 19.



Figure 2. MV Bison Express ship side damage.

MV Portland

The MV Portland's port quarter hull plating sustained some indentation, the guard rails were stoved in and the roller fairlead assembly, located on the sponson, was dislodged from its mountings.



Figure 3. Damage to MV Portland.

Grain loader

The grain loader sustained minor damage to its left foot.

3. FACTUAL INFORMATION

3.1 MV Bison Express

3.1.1 The vessel



Figure 5. MV Bison Express alongside repair berth in Port of Portland.

MV Bison Express is a 6442 tonne livestock carrier registered in the Port of Manila in the Republic of the Philippines⁴. The vessel is owned by Kagitingan Shipping Corporation in Manila, Philippines and is managed by Vroon B.V. Breskens, in The Netherlands.

The vessel was built by Van Diepen shipyard in The Netherlands and delivered to Kagitingan Shipping Corporation in July 1995. It has an overall length of 122.07 metres and a breadth of 15.85 metres. At the time of the incident the vessel had a forward draught of four metres and an aft draught of five metres, giving a mean draught of 4.5 metres. The vessels air draught⁵ at the time of the incident was approximately 26.8 metres.

The main propulsion for the vessel is supplied by a MAK 6M552C engine producing 4050 kW at 500 RPM driving a single right hand, 4-bladed controllable pitch propeller, giving the vessel a service speed of about 16 knots. The vessel had a Lips bow thruster of 373 kW.

The vessel's navigational equipment complied with the requirements of Chapter V of the International Convention for the Safety of Life at Sea 1974 (SOLAS) and is listed in Appendix B.

The vessel was classed with Bureau Veritas (BV).

3.1.2 Vessel manning

All contracting governments to the SOLAS convention undertake “to maintain, or, if it is necessary, to adopt, measure for the purpose of ensuring that, from the point of view of safety of life at sea, all ships shall be sufficiently and efficiently manned”. The International Maritime Organisation (IMO) provides guidelines for the manning of vessels in the document “Principles of safe manning”.

⁴ Is the “Flag state”.

⁵ The air draught is the vertical distance from the waterline to the highest point on a vessel.

The MV Bison Express was manned in accordance with the Minimum Safe Manning Certificate issued by the flag state.

The vessels officers and the crew were certified in accordance with the convention for the Standards of Training, Certification and Watchkeeping for seafarers 1978 as amended in 1995 (STCW 95).

3.1.3 Bridge team

Master

The master of the vessel was certified in accordance with STCW 95 and holds a Certificate of Competency as Master (Foreign Going) allowing him to serve in the capacity of master of MV Bison Express.

He commenced his career at sea in 1980 and had a total of nine months experience as master at the time of the incident. This was his second trip to the Port of Portland on MV Bison Express and his first trip as master.

The master stated that he had undergone training in bridge team management in the Philippines.

Pilot

The pilot has a total of 29 years experience as a seafarer and obtained a Certificate of Competency as Master (Foreign Going) in 1990.

The pilot was employed by Port of Portland on 01 October 2006 when he commenced training to be licensed as a pilot of the port. He was issued with a pilot licence for the Port of Portland in March 2007. The licence was valid at the time of the incident.

This was his first assignment following three days of rostered leave.

Deck rating

A deck rating was manning the helm. He had more than 20 years experience as a crew member on ocean going vessels and had been on MV Bison Express for approximately six months. He held a Certificate of Competency as a Deck Rating.

Mess-man

The mess-man was operating the bridge telegraph and maintaining the bridge / engine movement book at the time of the incident. He held a Certificate of Competency as a Mess-man and has a total of nine months sea experience, all of which was acquired on MV Bison Express. The mess-man was undergoing nautical officer training on the vessel.

3.2 MV Portland

MV Portland is an Australian registered bulk carrier of 23,262 gross registered tonnes and is owned by Portland Smelter Services. The vessel is 184 metres in length, 28 metres in breadth and has a freeboard⁶ of approximately five metres.

Typically the vessel loads alumina in Bunbury or Kwinana, Western Australia and discharges the alumina in Portland.

The vessel arrived in Portland on 18 May 2007, was berthed at the smelter berth and was discharging alumina at the time of the incident.

3.3 Grain loader

The grain loader was a purpose built unit of machinery owned by Grain Corp Australia.



Figure 6. Damage to grain loader foot.

⁶ Freeboard is the distance from the waterline to the upper deck level, measured at the lowest point where water can enter the ship.

3.4 Port of Portland

The Port of Portland stands behind the coast on the west side of Portland Bay, which is located on the western coast of Victoria.

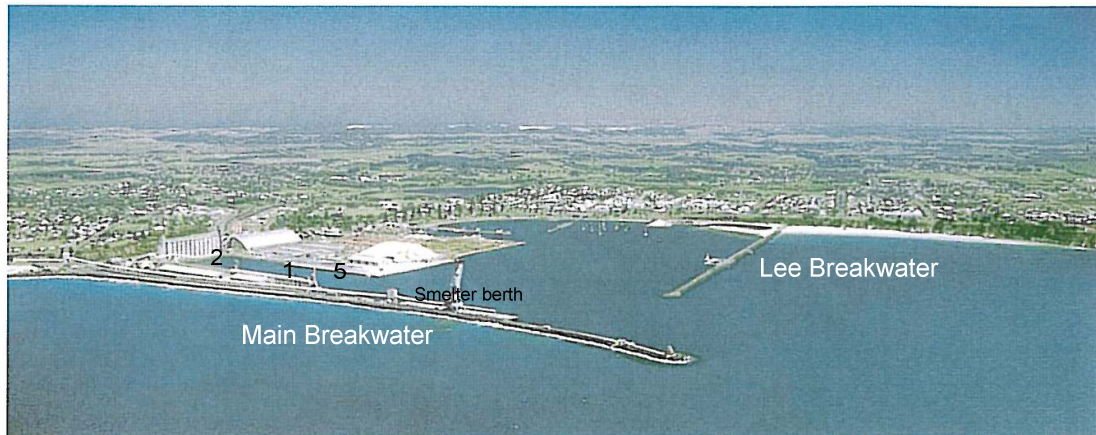


Figure 7. View of the Port of Portland from the east-north-east (Courtesy Admiralty Sailing Directions).

The port is a sheltered all-weather port enclosed by two breakwaters; with the Lee Breakwater providing protection from the north and the Main Breakwater providing protection from the east (Appendix A).

The KSA wharf, which is situated on the west side of the Main Breakwater, contains berths No.1 and No.2 for a combined length of 398 metres. The smelter berth is located on the west side of the Main Breakwater near the port entrance and is 205 metres long.

The navigable entrance to the harbour is 240 metres wide. The width of water between No.1 berth and No.5 berth at the root of Main Breakwater is 140 metres.

Vessels usually berth heading towards the entrance, to facilitate departure.

3.4.1 Pilotage operations

The pilotage information booklet provided by the Port of Portland advises that all vessels of 35 metres and over in length must use the services of a licensed pilot when arriving, departing or transiting the Port of Portland. This is in accordance with the requirements of the *Marine Act 1988*.

The information booklet also contains guidelines and checklists for pilots to follow for arriving and departing vessels. The “Pilots outbound checklist” requires that pilots discuss the passage plan in detail with the master and other members of the bridge team; including unberthing procedures, number of tugs, location of tugs and departure from the port to ensure that all parties have a full understanding and appreciation of the entire operation.

The Port of Portland also requires that the pilots complete a “Pilot’s Log”. The log requires that the master of the vessel make a declaration with respect to the condition of the vessel and equipment and record arrival and departure information with respect to the vessel.

In order to facilitate the proper conduct of pilotage operations, the Port of Portland has compiled the Pilotage Procedures Manual which all pilots and pilotage exempt masters are required to comply with.

The Manual contains general instructions on pilotage operating parameters, tug utilisation, arriving and departing instructions and a Code of Conduct for Pilotage Operations. The manual specifies that pilotage operations shall cease if the wind speed is 35 knots or more and the swell height is more than 3.5 metres. The manual does not specify whether these conditions are applicable to port waters or open sea conditions. In conditions below these parameters pilotage operations are to be at the pilot's discretion in consultation with the harbour master.

3.4.2 Port of Portland procedures for tug utilisation

The Pilotage Procedures Manual documents the minimum tug utilisation requirements in a "tug utilisation table". The preamble to the tug utilisation table states that the determination of the number of tugs utilised by an individual pilot will be subject to weather conditions and vessel type / characteristics, windage and displacement.

As per the table, and the associated information provided in the Pilotage Procedures Manual, vessels departing KSA Berth No.2 are required to use one or two tugs. The document further states that a bow thruster may count as one tug, weather permitting and vessel displacement / bow thruster power ratio being favourable. When departing KSA No.2, two tugs are to be used if both KSA No.1 and No.5 are occupied.

At the time of the incident KSA No.5 berth was occupied by MV Apollogracht and KSA No.1 berth was unoccupied.

3.4.3 Weather information for pilots

The Port of Portland advised that it is normal practice for pilots to refer to weather information from a weather monitor on the Lee Breakwater, the Bureau of Meteorology and Elder's Weather services. The Port of Portland states that the weather information provided by these services is not adequate during certain periods of the year for the Portland coastal region because of climatic influences and the interference of sea temperature and the South Atlantic swells.

3.4.4 Tug utilisation trends in the Port of Portland

The Port of Portland provided the investigation with data on vessel arrivals, tug usage and vessels with transverse thrusters⁷. The data showed that the number of vessels with transverse thrusters arriving in the Port of Portland has gradually increased from year 2004 to 2007. For the same period, the use of tugs at the port remained relatively constant.

⁷ Transverse thrusters located in the forward of the vessel are called "bow thrusters" and thrusters located on the aft of a vessel are called "stern thrusters".

3.5 Interview information

3.5.1 Master - MV Bison Express

The master of MV Bison Express stated that the vessel arrived in the Port of Portland at about 0730 on 22 May 2007 and berthed at KSA wharf No.2 with its head towards the entrance.

In preparation for the departure the master requested the pilot for 1600 and asked his agent to provide him with a weather forecast. At 1500 the vessel's agent brought the weather report and the departure paperwork was completed. One hour's notice of departure was given to the engine room and navigational and steering gear tests were completed at 1545.

The master stated that the pilot arrived at 1540 and told him that he would like to complete the unberthing and vessel departure as quickly as possible. He stated that he assigned the chief officer and the second officer to forward and aft stations and the deck rating to the helm and the mess-man to operate the bridge telegraph and record the movements in the movement book.

The vessel log book shows that the vessel was singled up at 1555 and at that time the wind was a westerly force 3 (7 – 10 knots).

The master stated that he asked the pilot if a tug was required and the pilot responded that a tug was not required as the unberthing operation was a relatively simple one. The master further stated that he advised the pilot to leave one forward spring line in order to swing the stern out, but the pilot required all the lines to be released.

After the lines were released the master stated that the pilot ordered the engines to "slow ahead", bow thruster to "full port thrust" and the rudder hard over to starboard. He stated that the bow swung out 10° – 15°, but the stern of the vessel was hugging the wharf while the vessel gradually moved forward.

The master stated that at about 1605 the vessels stern was adjacent to the grain loader. He stated that the stern swung back in towards the berth and the starboard quarter of MV Bison Express struck the foot of the loader. He estimated that at the point of contact the vessels bow had swung out by about 15° – 20°.

The master stated that the vessel had been shielded by the partial lee formed by the warehouses along No.5 berth but as it passed the corner of berth No.1 it was exposed to a strong wind from the west. He stated that initially the vessel was about 70 metres behind and on a parallel heading to the MV Portland when it started moving bodily into the wharf basin between No.1 berth and the smelter berth. The master stated that he advised the pilot that the vessel was turning to starboard and the bow was heading towards the after part of the MV Portland. The pilot acknowledged this advice with "Its OK, I know".

The master said that at about 1608 the distance between the two vessels had closed to about 50 metres. He then took control and ordered engines "Full ahead" and rudder to "hard over to port". He stated that the bow then cleared the MV Portland and he then ordered "midships" and then "hard over to starboard" to clear his vessel from the MV Portland but it was too late and the starboard quarter of the vessel collided with the port quarter of the MV Portland.

He said that MV Bison Express was then anchored in Portland Bay about two nautical miles north -east of the main breakwater light.

When asked if the master had discussed the unberthing plan with the pilot, the master replied that he had only discussed the duties of the vessel's officers and crew and had not discussed the actual unberthing operation with the pilot. He stated that the vessel had no specific documented procedures for unberthing or berthing operations.

With respect to a risk assessment for high wind conditions or tidal currents the master stated that no specific assessments had been carried out nor a contingency plan developed for such situations.

3.5.2 Pilot's evidence

In his evidence the pilot stated that on the day of the incident he boarded the vessel at 1540. He said that the vessel was moored with six forward lines and six stern lines. The pilot stated that as the vessel had a bow thruster he suggested that the bow thruster is used and that the vessel's master agreed to this. He requested that the vessel be singled up and at about 1600 he ordered that all lines be released and "Full bow thruster to port". When the bow had swung out about 10⁰ he ordered the engines to "slow ahead" and wheel "hard over to starboard".

The pilot stated that the vessel progressed forward but the stern of the vessel kept swinging in and out. He said that at about 1604 the vessel bow had swung out but the stern started to swing back in towards the wharf due to the strong west-north-west wind so he stopped the bow thruster but the stern touched the wharf. He said that the vessel's stern was adjacent to the grain loader and just after hitting the wharf the vessels starboard quarter hit the foot of the grain loader.

The pilot said that the stern of the vessel then swung out again and he ordered "dead slow" and wheel to "midships". His intention was to steer the vessel off the berth and head for the Lee Breakwater. He stated that the vessel progressed forward and just as it was almost clear of berth No.1 the stern swung back in due to the wind and clipped the wharf at the edge of the berth.

The pilot stated that the vessel then cleared berth No.1 and was parallel to and on the port side of the MV Portland. He stated that he could see the port quarter and the port bridge wing of MV Portland and that his vessel was well clear of the wharf basin.

The pilot stated that after clearing berth No.1 MV Bison Express started moving towards MV Portland and the shore and at about 1609 he ordered "full ahead" and "hard over to port". He said that the master followed this order, but kept giving various orders after his order. The pilot said that he then ordered "hard over to starboard" with the intention of clearing the vessel's stern from MV Portland. He said that initially the master followed this order but then changed it to "hard over to port". Then the pilot stated that the master started talking to the crew in a language not understood by him and started giving various orders and "all the orders got mixed up". He stated that MV Bison Express kept progressing forward and towards MV Portland and at about 1610 the starboard quarter of MV Bison Express hit the port quarter and the protruding section (sponson) of MV Portland.

When asked what the engine speed was at the time of the incident the pilot replied that he was not sure. He stated that he noted that the wheel was at “hard a port” when the contact between the two vessels occurred.

The pilot said that he asked the master why he had not followed the “hard a starboard” order, to which the master replied “sorry pilot”.

He stated that the master then navigated the vessel to the anchorage and dropped anchor about 1.2 nautical miles, east-north-east of the Main Breakwater.

The pilot commented that he did not request the assistance of a tug as he had manoeuvred several vessels from berth No.2 and it was a relatively simple operation. He said that he did not make an assessment of the vessel’s bow thruster power nor did he take into account the location or make an assessment of the limitations of the thruster.

The pilot also stated that during the unberthing process the master had not requested that the forward spring line be left in order to swing the stern out.

With respect to the weather report for the day, the pilot stated that he referred to a word-pad document on a computer that downloads weather information from a monitoring station on the Lee Breakwater. The pilot also stated that he did not obtain a weather forecast, but relied on the current weather information on the word-pad document to provide a guide to future weather trends.

3.5.3 Mooring gang evidence

The mooring gang stated that they released the ropes for the vessel and observed the unberthing and progress of MV Bison Express. The interviewed members stated that they followed the progress of the vessel from their vehicle by travelling on the road alongside the Main Breakwater. They said that the vessel appeared to have difficulty coming off the berth and that they observed MV Bison Express make contact with the grain loader.

The mooring gang members stated that after the vessel cleared No.1 berth, they felt that MV Bison Express was “going on the rocks in the wharf basin”. Then they observed the vessel’s bow swing to port and saw the starboard quarter of MV Bison Express collide with the port quarter of MV Portland.

3.5.4 MV Portland crew evidence

Chief Officer

The chief officer of MV Portland stated that he commenced duty at 0800 and was overseeing the discharge of the alumina from the vessel. At about 1600, when he was in the process of handing over the deck cargo watch to the third officer, the shore based alumina unloader operator called him on the radio and asked him to observe the vessel behind MV Portland.

The chief officer said that he went onto the port side bridge wing and saw MV Bison Express “appearing at an angle from dead astern and passing the port side of MV Portland”. He said that as the bow and the bridge superstructure of MV Bison Express cleared the stern of MV Portland he noticed that the stern of the vessel had started swinging towards MV Portland and he moved away from the bridge wing into the bridge for his safety.

The chief officer said that he felt the impact of MV Bison Express on MV Portland and then observed two holes on the starboard quarter of MV Bison Express as it passed MV Portland. He stated that the master of MV Portland entered the bridge and they both observed MV Bison Express clear the breakwater.

Master

The master of MV Portland stated that he was in his cabin at the time of the incident and it was purely by chance that he observed MV Bison Express through his cabin port-hole. After he felt the impact he went to the bridge and observed MV Bison Express navigate past the breakwater. The master then made an assessment of the damage to his vessel, which he observed to be a damaged fair lead roller assembly and some minor hull damage to the port quarter.

3.6 Climatic and Environmental conditions

At the time of the incident the weather was reported by the Bureau of Meteorology to be a north-westerly wind of 14 knots⁸ gusting to 21 knots. Seas were mostly two to four metres and southwest swell of three to five metres.

The MV Bison Express logged the weather for 1555 as a westerly wind force 3 (7 – 10 knots) and at 1600 as a wind force of 5/6 (20-25 knots).

Weather information downloaded from a monitoring station on the Lee Breakwater in the Port of Portland indicated mean westerly wind speed of 10 knots gusting to 19 knots at 1600.

3.7 Governing legislation, rules and guidelines

3.7.1 Licensing of Pilots

Pilots are licensed in accordance with the Marine Board of Victoria “Code for Training and Licensing of Marine Pilots for Victorian Ports”. The powers of the Board were transferred to the Director of Marine Safety in February 2002.

The Pilot

Pilotage training for the pilot was conducted in the Port of Portland. During the first month of his training he accompanied senior pilots and observed the pilotage operations during arrival and departure of approximately 40 vessels. He then conducted practical pilotage of approximately 90 vessel movements under the supervision of a senior pilot. The applicant was then examined by an examiner appointed by the Director of Marine Safety and issued with a Pilot Licence for the Port of Portland on 09 March 2007. After gaining his pilots licence the pilot conducted 10 vessel movements under the supervision of a mentor pilot and eight vessel movements on his own.

3.7.2 International Safety Management Code (ISM Code)

The International Safety Management (ISM) Code is the International standard for the Safe Operation of Ships and for Pollution Prevention as adopted by the

⁸ 1 knot is 1 nautical mile per hour or 1.852 kilometres per hour.

International Maritime Organisation (IMO). The objectives of the Code are to ensure safety at sea, prevention of human injury or loss of life, and avoidance of damage to the environment, in particular to the marine environment and to property.

The ISM code requires the company to establish procedures for the preparation of plans and instructions for key shipboard operations concerning the safety of the ship. The various tasks involved are required to be defined and assigned to qualified personnel. The vessel management company provided this investigation with documented procedures for passage planning including pre-arrival and pre-sailing procedures. The manual incorporated a section on Navigation and Port Operations, risk analysis which included guidelines for identifying risks and ranking risk, based on frequency and probability. However the master of the vessel advised that he was not aware of specific procedures for shipboard operations such as unberthing or berthing operations.

The ISM code requires that the ship management company carries out internal audits of their managed vessels to ensure that ship staff are conversant with company procedures and are complying with them.

In accordance with the ISM Code the vessel was issued a "Safety Management Certificate" and the management company was issued a "Document of Compliance" by the flag state. The documents were valid and current at the time of the incident.

3.7.3 Bridge Resource Management (BRM)

BRM is the effective management and utilisation of all resources, human and technical, available to the bridge team to ensure safe operation of a vessel.

BRM focuses on the bridge officer's knowledge and skills such as communication, leadership, decision making and resource management to anticipate and plan for contingencies, regulatory, individual and organisational factors. A key aspect of BRM is that it puts in place defences against 'single person errors'.

BRM requires that a common working language is used by the bridge team. SOLAS requires that English is used on the bridge as the working language for bridge-to-bridge and bridge-to-shore safety communications as well as for communication between the pilot and bridge watchkeeping personnel.

The principles of BRM are outlined in section B-VIII/2, part 3-1 of STCW 95. Completing a BRM course by ships' officers is a mandatory requirement for STCW 95 Certificates of Competency.

The Australian Maritime Safety Authority (AMSA), Marine Notice 34/2002 states "The master and the bridge team should remember that they are always responsible for and in charge of the safe navigation of the ship, even when navigating with a pilot".

The management company of the MV Bison Express provided this investigation with documentation defining the responsibilities of each member of the bridge team. The documentation states that if the master is at any time dissatisfied with the pilot's actions he must assume the con⁹ and take action to re-establish the safety of the vessel.

⁹ Direct the steering of the ship.

4. ANALYSIS

4.1 The incident

This incident involved an error of judgement in the handling of the MV Bison Express by the pilot and the master during the attempt to unberth the vessel. This error of judgement caused the vessel to impact the wharf, a grain loader and another vessel before it was sailed safely to anchor.

When entering or leaving a port, the master is usually assisted by a pilot who has specific local knowledge about the operations and conditions at the port. The master is always in command of the vessel but in most cases will defer to the advice of the pilot for his preferred course of action. It is therefore necessary for the master and the pilot to work together to ensure the safe passage of the vessel.

The significant elements of the event were the limited experience of the pilot and master, the prevailing wind conditions, the make-up of and communications within the bridge team and the safety management system used by the vessel. A more experienced master and pilot would have discussed their unberthing preferences, including prevalent weather conditions and whether a tug needed to be utilised. The pilot was licensed two and a half months prior to this incident and had limited opportunities to pilot vessels of the type of MV Bison Express. It is likely that the master, who had only been to Portland on this vessel on one previous occasion, would have assumed that the pilot was far more experienced in operations in the port and been hesitant to question the pilot on his decision to not use a tug.

4.2 Ship handling

In the unberthing process the pilot and master had various aides available to them. The MV Bison Express was equipped with a bow thruster, the port had tugs and weather forecasts and observations from both the vessel and the port were available.

In accordance with Port procedures, MV Bison Express required the use of at least one tug in the unberthing process, but a tug could be replaced by a transverse thruster at the pilot's discretion. The procedures stated that the pilot should consider weather conditions and vessel characteristics, such as windage and displacement.

The pilot decided that the use of a tug was not warranted. He then decided to use the bow thruster to move the bow of the MV Bison Express off the wharf and to use the vessel's rudder in combination with the main engine to move the stern from the wharf. This technique would have been successful in most circumstances. On this occasion, the bow was successfully moved off the wharf with the thruster, but while the pilot ordered the rudder to "hard over to starboard" he requested that the main engine be only operated at slow ahead. Had the main engine been used in short but strong (half or full) ahead movements, adequate thrust may have been created to move the stern from the wharf.

Contributing to the stern not moving clear of the wharf was the prevailing wind, a gusting westerly, which, in combination with the significant side windage area of the MV Bison Express, would have acted to keep the vessel against the wharf. The effect of the wind could have possibly been countered by the application of increased main engine power but most certainly countered by the use of a tug aft.

4.3 Bridge Resource Management (BRM)

For the unberthing operation the master of the MV Bison Express assigned his two navigating officers, the chief officer and the second officer, to deck duties leaving himself as the only vessel crew member experienced in vessel handling on the bridge. In this incident, the master could not delegate duties to other members of the bridge team. Instead, he was required to monitor the actions of his crew including helm orders and engine movements, monitor the status of the navigation equipment, relay the pilot's advice to the bridge team and to the mooring teams and at the same time try to monitor the ship's movement during unberthing. The workload involved may have affected his initial monitoring of ship handling.

Successful operations require the efficient use of all the available resources. In this incident an unberthing plan does not appear to have been adequately prepared by the pilot in that he did not adequately consider the characteristics of the vessel and the prevailing wind conditions. Had a plan been adequately discussed by the master and the pilot with another navigating officer involved in that discussion then it is possible that a different course of action would have been undertaken. In this case it is evident that the bridge resource management employed was inadequate.

4.4 International Safety Management (ISM) Code

Although the ship management company had provided the MV Bison Express with a quality management manual containing procedures for port operations and voyage planning, the master of the vessel was not familiar or aware of the existence of these procedures.

The internal audit regime conducted by the management company should have identified that the vessel had not complied with their requirements for a risk assessment for key shipboard operations.

A vessel such as a livestock carrier has a higher than average windage area and therefore is more susceptible to the effects of wind. No evidence was found that the vessel had conducted a risk assessment related to the key shipboard operation of unberthing. A risk assessment for the berthing and unberthing operation of this vessel may have identified risks and mitigating factors such as the usage of tugs and may have prevented this incident.

The audit regime applied by the flag state nominated body was not sufficiently comprehensive and did not detect that the vessel had not complied with the ISM code and company requirements for the development of plans for key shipboard operations.

5. CONCLUSIONS

5.1 Findings

The pilot and master were appropriately qualified but relatively inexperienced in their positions.

No mechanical fault was found with the MV Bison Express that could have affected its operation during unberthing.

The MV Bison Express did not identify the unberthing operation as a critical vessel operation and did not carry out a risk assessment as required by the management company procedures.

Internal audits conducted by the ship management company did not identify that the vessel had not complied with their procedures.

ISM audits by flag state were not sufficiently comprehensive and did not identify that the vessel had not developed plans for key shipboard operations.

5.2 Contributing Factors

The unberthing procedures adopted by the pilot did not consider the prevailing weather conditions adequately.

The inadequacies of the unberthing procedures were not challenged by the master.

The wind strength increased during the unberthing operation.

The ship handling techniques employed by the pilot were inadequate for the unberthing operation.

6. SAFETY ACTIONS

6.1 Safety actions taken since the incident

The Port of Portland

The Port of Portland has undertaken a review of the pilotage procedures manual.

Vessel and ship managers

The vessel managers have developed training videos titled “master-pilot relationship” highlighting the requirements for passage planning.

6.2 Recommended Safety Actions

Port of Portland

RSA2008020

The Port of Portland in consultation with the pilots reviews the usage of tugs and preparation of berthing and unberthing plans with vessel masters.

RSA2008021

The Port of Portland ensures that the available weather information systems are utilised by pilots and they are aware of the local weather anomalies.

Vessel and ship managers

RSA2008022

The vessel managers ensure that the shipboard personnel are familiar with company procedures and audits are carried out to ensure that these procedures are followed.

Regulatory Bodies

RSA2008023

The Flag State or the nominated body ensures that all the requirements of the ISM code are complied with prior to the issue of certification to ship management companies and vessels.

Appendix B - MV Bison Express particulars

IMO Number	9115949
Flag	Philippines
Port of Registry	Manila
Classification Society	Bureau Veritas
Class Notation	I 3/3E, Deep Sea; Coupe 00 070 D
Ship Type	Livestock Carrier
Builder	Shipyards Van Diepen B.V. Netherlands
Year built	1995
Ship Manager	Vroon BV, 4510 AA Breskens, Holland
Gross Tonnage	6442
Net Tonnage	1932
Deadweight	4570 tonnes
Length Overall	122.07 metres
Moulded Breadth	15.85 metres
Moulded Draught	5.642 metres
Distance Bridge to Bow	19.0 metres
Distance Bridge to Stern	103.08 metres
Keel to Topmast	31.3 metres
Air Draught	26.3 metres

Navigation Equipment

Marine Radar (2 off)	Furuno, FR-2110-ARP
Gyro Compass	Anschutz and Co. Standard 20-222
Gyro Compass Repeater	Anschutz and Co. 133-406 NG-001
Magnetic Compass	Cassens & Plath Refleca
Magnetic Compass Repeater	IT Holland 6MC
Direction Finder	JMC DF-230 MKHA
Echo Sounder	Furuno FE 606
VHF DSC Radio Unit	Furuno DSC – 6A
GPS Unit	Phillips AP Navigator