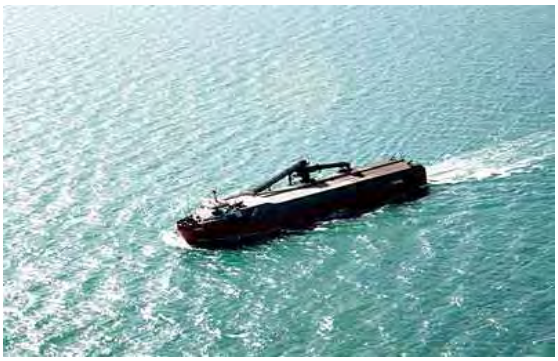

REPORT OF THE BOARD OF INQUIRY INTO THE MARINE INCIDENT INVOLVING THE SHIP *WUNMA* IN THE WATERS OF THE GULF OF CARPENTARIA ON 6 AND 7 FEBRUARY 2007

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CHAPTER 1 INTRODUCTION

[1] On 5 February 2007 the Master of the *Wunma* found himself in a difficult situation. The ship was loaded with zinc ore concentrate and a cyclone was forecast. The cargo could not be unloaded. The objective of the Maritime Cyclone Contingency Plan for the Port of Karumba was for large vessels to go to sea. No cyclone mooring was available to which the *Wunma* could safely moor. No cyclone mooring had been established in the Norman River to replace the "decommissioned" cyclone mooring at Sweers Island.

[2] This ore-carrying transfer vessel was originally intended to have access to a cyclone mooring in the event of a cyclone threat. She now faced the prospect of sailing into extreme weather, in open waters and in a loaded condition.

[3] The ship had been unable to transfer her cargo to an export vessel late on the night of Saturday, 3 February and during 4 February because of unsuitable weather and sea conditions. On Sunday, 4 February the ship returned to port with her "dirty water tanks" full. During Monday, 5 February a strong wind warning was issued for Eastern Gulf waters. The Bureau of Meteorology's ("BOM") synopsis issued at 1130 hours on Monday, 5 February was that a tropical low in the SW Gulf of Carpentaria was moving eastwards and "may develop into a Tropical Cyclone over the South East Gulf on Tuesday."

[4] The threat of a cyclone prompted a decision to sail. A cyclone over the South East Gulf could be expected to produce a tidal surge. The long-standing advice of the Regional Harbour Master (Cairns) was for vessels to leave their normal moorings when the threat of a cyclone existed. Small vessels were advised to go to more sheltered locations within the creeks and waterways off the Norman River, with mangrove areas offering the best shelter. Under the Port of Karumba Cyclone Contingency Plan ("CCP") the anchoring of large vessels upstream was not recommended due to tidal surges that could inundate the area, which, with high winds, might strand vessels inland of the river system, making any salvage extremely difficult. The CCP stated that the Harbour Master's requirements for clearing the port of large vessels would generally be that wind speeds must not have

reached 30 knots. In any case, if the *Wunma* was to go to sea, it had to do so before winds reached such a speed. The width of the channel meant that the ship could only safely enter or leave the Port if winds were less than 25 knots.

[5] The tropical low pressure system that became Tropical Cyclone Nelson was not named as a cyclone until shortly before 0739 hours on 6 February 2007. But on 5 February 2007, forecast cyclonic activity in the Gulf required the Master of the ship and others responsible for her safe operation to consider whether the ship should leave the Port and where she should go.

[6] The ship had not been designed to sail into cyclonic conditions and remain in open waters with a load. There was no facility to unload her cargo in port, and the conditions that prevailed at sea made it very unlikely that she would be able to transfer her load onto the export vessel.

[7] The ship departed the Zinifex wharf at 1900 hours on 5 February, and after clearing the Fairway Beacon at 2030 hours headed North. The events on the voyage are more fully described in later Chapters. A critical decision was made by the Master at 1140 hours on Tuesday 6 February to reverse course and head South, based upon his understanding of the path of the cyclone and appropriate cyclone avoidance measures. During the afternoon and evening of 6 February a large volume of water, both rainwater and seawater, collected in the aft well deck and the cargo hold. How the ship accumulated water and the steps that were taken to remove it will be described later in the report. At around 2010 hours on 6 February water mixed with zinc concentrate that had entered the emergency generator room through a radiator vent affected the emergency switchboard. The ship lost all power. Some power was restored through the endeavours of the Chief Engineer. But the loss of power had a serious impact on the ship's communications systems. Difficulties were experienced in communicating information and advice to the ship during the night of 6 February and the morning of 7 February. The continuing ingress of water and the information available to the ship's Master about its consequences led to a decision to abandon ship. The crew were rescued by two successive helicopter lifts at 1130 hours and 1300 hours on 7 February.

[8] The Board is not concerned simply with what occurred on 6 and 7 February 2007, after the ship went to sea. The Board must inquire into the probable *causes* of the

marine incident and is asked to consider whether there were any systemic or regulatory arrangements that contributed to the incident.

[9] To report on these issues it will be necessary to first give an account of the history and operation of the ship prior to the incident. Chapter 4 outlines the concept of the transfer vessel, her intended operation in carrying concentrate from the Karumba port facility to overseas bulk carriers anchored between 12 to 20 nautical miles (22 to 37 kilometres) offshore and the fact that originally a cyclone mooring was planned as an essential element in her intended operation.

[10] The existence of the cyclone mooring buoy at Investigator Road, Sweers Island and the risks associated with the ship using it in cyclonic conditions became a matter of ongoing controversy. Representatives of Gulf communities sought its removal. The owners and operators of the ship developed proposals to allow the ship to go into open waters in the event of a cyclone, rather than use the cyclone mooring. These proposals culminated in the upgrading of the ship's registration to Class 2B in September 2005 and the non-renewal in December 2005 of the cyclone buoy mooring authority. By early 2007 the cyclone mooring buoy had effectively been abandoned and it was probably not in an operational state.

[11] The ship's operations are described in Chapter 5. Because the ship's water management system was a significant cause of the incident, its design and operation are described in Chapter 6.

[12] Chapter 7 describes the findings of the Thompson Clarke Operational Review, which in December 2006 made a number of recommendations about the operation of the ship, including the need to urgently review its cyclone procedures. Unfortunately those procedures were not changed before the incident, permitting the ship to be caught in a loaded condition when a low pressure system that had been in the Gulf since 1 February 2007 produced sea and wind conditions that prevented the ship discharging the cargo that she loaded on 3 February 2007.

[13] Chapter 8 analyses load line and related design issues.

[14] Chapter 9 identifies a number of systemic and regulatory arrangements that existed prior to the incident, and contributed to it.

[15] In addition to considering whether any systemic or regulatory arrangements contributed to the incident, the Board was asked to inquire into what can be broadly described as compliance issues. The Board inquired into the structures, policies and procedures that were in force or implemented by the owners and managers of the ship and those on board at the relevant time. It also inquired into the extent to which persons associated with the ship performed their duties. These matters are reported in Chapters 10-13.

[16] The adequacy and effectiveness of the response to the incident, including search and rescue procedures, salvage arrangements and the provision of a port of safe haven are addressed in Chapter 14.

[17] Chapter 15 deals with the remedial response to the incident. Chapter 16 discusses the impact of the incident on the marine environment.

[18] Chapter 17 contains the Board's findings about the causes of the incident.

[19] Chapter 18 contains a number of recommendations.

[20] Chapter 19 makes some concluding observations.

WUNMA BOARD OF INQUIRY

CHAPTER 2: THE INQUIRY

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CHAPTER 2: THE INQUIRY

2.1 THE ESTABLISHMENT AND TERMS OF REFERENCE OF THE BOARD OF INQUIRY

[1] The Board of Inquiry was established under Part 12 of the *Transport Operations (Marine Safety) Act* 1994 ("*TOMS Act*"). The role of a Board of Inquiry is to:

- inquire into the circumstances and probable causes of the relevant marine incident; and
- give the Minister a written report of the Board's findings.[1]

The Board's report may contain such recommendations as the Board considers appropriate and other relevant matters.[2]

[2] The Board was established by a notice in the *Queensland Government Gazette* on 16 March 2007. The "marine incident"[3] was the abandonment of the ship on 7 February 2007. The notice stated:

> "The Board of Inquiry is to inquire into the circumstances and probable causes of the incident, with special reference to:
>
> 1. The operational factors which contributed to the incident;
>
> 2. The environmental factors which contributed to the incident;
>
> 3. Whether any systemic or regulatory arrangements contributed to the incident;
>
> 4. Whether the relevant persons were appropriately qualified and experienced in their roles on the *Wunma*; with special reference to tropical revolving storms;
>
> 5. The command structure, policies, procedures, training, equipment and workplace environment procedures in force or implemented on board the *Wunma* at the relevant time, including any hazard identification, risk assessment, contingency plans and consideration of appropriate control measures;
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> 6. The management structures, policies, procedures, training, and emergency procedures in force or implemented by the owners and managers of the *Wunma* at the relevant time, including any hazard

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1 *TOMS Act* ss.132(1).
2 *TOMS Act* ss.132(2).
3 *TOMS Act* s.123

identification, risk assessment, contingency plans and consideration of appropriate control measures;

7. The extent to which persons associated with the *Wunma* performed their duties (whether on board the ship or ashore, and whether supervisory or otherwise) in accordance with the policies and procedures in force at the relevant time and, if applicable, the extent to which personnel failed to perform their duties (whether supervisory or otherwise) and the reasons (if any) for such failure;

8. The adequacy and effectiveness of the response to the incident, including search and rescue procedures, salvage arrangements and the determination and provision of a port of safe haven;

9. Whether any breach of a requirement under the Queensland maritime legislation occurred, and if so, whether any person should be charged with an offence against the Queensland maritime legislation."

[3] The Board's members were appointed on 20 April 2007.

[4] Counsel from the independent Bar, Mr Martin Burns, was appointed as Counsel Assisting on 8 May 2007 and, prior to the commencement of the Board's public hearings on 13 August 2007, he was joined by Mr Sydney Williams of Counsel.

[5] The Board first convened for a planning meeting on 15 May 2007.

[6] Administrative support to the Board was provided by the Queensland Government which employed persons to assist in that regard as well as to occupy the position of Secretary to the Board.

[7] A website – www.boiwunma.com – was established to provide information to the public about the course of the Inquiry and, later, to provide the means by which the transcripts of proceedings, rulings and exhibits of the Board could be downloaded.

2.2 INVESTIGATIONS ON BEHALF OF THE BOARD

[8] Investigations on behalf of the Board were under the direction of Counsel Assisting and, ultimately, the Board. An experienced investigator, Mr Paul Campbell, was seconded from his duties as a Sergeant in the Water Police section of the Queensland Police Service and appointed as Chief Investigator. Later, he was assisted by Ms Mandy Nixon who was seconded from Queensland Transport to assist in the investigation and preparation of the evidence for the hearings.

[9] Both Mr Campbell and Ms Nixon were, and are, shipping inspectors under the

TOMS Act.[4] During the course of their investigations, each was required to exercise their powers as inspectors in obtaining documents and information.[5]

2.3 THE COURSE OF THE INQUIRY

[10] Written notice of the Inquiry was given under section 137 of the *TOMS Act* to various persons or entities that the Chairperson believed ought to be given the opportunity to appear at the Inquiry, including the Master and owner of the *Wunma.*

[11] On 16 May 2007, a Practice Direction[6] was issued to regulate the proceedings including the hearing of applications for leave to appear, the modes and forms of evidence, the course of evidence during the public sittings, the making of submissions and allowances to witnesses. The fact that the Board was to convene was also advertised in the media and on the Board's website.

[12] On 22 May 2007, the Board was convened for a Directions Hearing which included the hearing of a number of applications for leave to appear. As with the subsequent public hearings of the Inquiry, these proceedings were recorded in accordance with Section 140 of the *TOMS Act*.

[13] The following parties applied for and were given leave to appear during the course of the Inquiry:

- Zinifex Limited and two of its wholly owned subsidiaries, Zinifex Group Treasury Pty Ltd and Zinifex Investment Co Pty Ltd trading as the SIA Partnership that owned the ship (collectively, "Zinifex");
- Inco Ships Pty Ltd ("Inco"), the ship's manager at the relevant time and formerly named Intercontinental Shipping Management Pty Ltd ("ISM");
- Captain Dean Seal, the Master of the ship at the time of the incident;
- Maritime Safety Queensland ("MSQ"), an entity established under the *Maritime Safety Queensland Act 2002*;
- Australian Maritime Safety Authority ("AMSA");
- Australian Fisheries Management Authority ("AFMA");
- Environmental Protection Agency ("EPA"), an entity established under Queensland law.

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4 Pursuant to Part 13 of the *TOMS Act.*

5 Sections 135, 155 and Division 3 of Part 13.

6 Exhibit 3.

[14] Certain other parties, including the ship's designer, were given the opportunity to seek leave to appear but did not avail themselves of this opportunity. Whilst those parties did not seek leave to appear, the Inquiry was assisted by their cooperation and evidence.

[15] Because a Board of Inquiry is required to act as quickly as is consistent with a fair and proper consideration of the issues, the Board's investigators and its Counsel Assisting were required to assemble and analyse a large volume of documents in a relatively short time. They also were required to seek and prepare over 70 witness statements from 57 separate witnesses which, under the Board's Practice Direction, stood as the witnesses' evidence in chief in the interests of reducing the duration of the hearing time.

[16] The efficient conduct of the hearing was facilitated by the preparation of a "core bundle" of documents that consists of 217 separately tabulated documents consisting of reports, correspondence, charts and other records. In addition, during the course of its hearings the Board received in excess of 130 separate exhibits. These exhibits include substantial expert reports about matters such as ship design, ship operations, and environmental issues.

[17] The public sittings of the Board occupied 11 days on various dates between 13 August 2007 and 6 September 2007. This involved the examination of numerous witnesses either in person or by telephone, where appropriate. The examination of witnesses during this period generated 941 pages of transcript.

[18] The fair and proper consideration of the issues necessitated a review of the large volume of documentary evidence and the transcript of evidence, and resulted in the formulation and circulation of written submissions by Counsel Assisting followed by written submissions by the parties. The parties were also offered the opportunity to supplement their written submission with oral addresses, but that offer was not taken up by any party.

[19] Between 16 and 18 October 2007, Counsel Assisting forwarded to several persons and entities written notice of the possibility that the Board might make adverse findings concerning various matters. This was done to afford those persons and entities an opportunity to respond by way of submissions.

[20] Written submissions were received from, or on behalf of, the following:

- Carpentaria Land Council Aboriginal Corporation ("CLCAC")
- MSQ
- Inco
- AFMA
- Captain Seal
- Mr Tonkin
- AMSA
- Zinifex.

2.4 THE BOARD'S INDEPENDENCE

[21] The Queensland Government provided administrative and financial support to the Board so that it could carry out its functions. Inevitably, it was necessary for the Board and Counsel Assisting to communicate with officers of the Department of Transport about administrative matters. Because MSQ was a party before the Board it was important that the Board both be independent of MSQ and appear to be independent of it.

2.5 PUBLIC ACCESS TO THE INQUIRY

[22] Under section 138 of the *TOMS Act*, an Inquiry must be held in public unless a direction is given to the contrary, and such a direction may only be given if the Board is satisfied that it is proper to make the order in "the special circumstances of the Inquiry".

[23] The Board's Practice Direction made provision for parties to apply for the preservation of certain confidential information contained in exhibits and the like, such as commercially confidential information. In some instances proper claims to confidentiality in respect of certain financial matters justified portions of a small number of exhibits being redacted. However, those few exceptions apart, the evidence before the Inquiry was accessible to the public. Public access was facilitated by the uploading of transcripts and exhibits on the Board's website.

2.6 DURATION OF THE INQUIRY

[24] The Board was required to act as quickly, and with as little formality and technicality, as is consistent with a fair and proper consideration of the issues. The Board's Terms of Reference raised issues of some complexity as will appear in the

later Chapters of this report. The Board was required to consider a large volume of documentary and other evidence.

[25] A full exploration of this material might have occupied weeks of public hearings. With the assistance of the parties, the public hearings of the Inquiry were able to be completed in 11 sitting days. The need to report on the circumstances of the incident and its probable causes means that the Board's report must be delivered whilst certain investigations by parties and their consultants into remedial matters continue.

2.7 THE BOARD'S OBJECTIVE

[26] When the Honourable Paul Lucas MP, the then Minister for Transport and Main Roads, announced that there would be a Board of Inquiry he told the Parliament:

> "Boards of Inquiry are not about playing a blame game; they are not established with a purpose of pointing fingers at individuals. The primary role of the Board will be to look at all of the facts leading up to, during and after the marine incident, and make recommendations that will hopefully have benefits for the whole of the marine industry operating in far-north Queensland and the Gulf."[7]

[27] The Board shares the view that the Inquiry was not about playing "a blame game". The Board has the benefit of hindsight concerning the causes of the incident. Its focus was not to apportion blame, and it does not determine issues of legal liability. The Board is not a court of law. Its essential function is to inquire into what happened and why it happened. In addition, a Board of Inquiry may make recommendations that the Board considers appropriate.

[28] The Board's report includes recommendations. The need to conclude the Board's inquiry means that its recommendations could not await the completion of ongoing investigations into matters such as the precise location, design and engineering requirements for a suitable cyclone mooring in the Norman River. The Board's recommendations are based on the information available to it at the time its report was written.

[29] Those recommendations are ventured in the interests of assisting the future safe operation of the ship and avoiding a repetition of the incident. However, acting within the necessary time and resource constraints, the Board was never going to be

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7 *Hansard* 15.3.07 p.1086.

in a position to devise complex engineering solutions or detailed operating procedures for the ship's future operation. These matters depend upon the completion of ongoing investigations into matters such as the design and installation of cyclone moorings in the Norman River, design modifications to the ship and the development and refinement of operating procedures in the context of contractual arrangements between the ship's owners and her manager.

[30] That said, the Board hopes that its recommendations will inform decisions to be made by the owners and operators of the ship, regulatory authorities and others with an interest in the safe operation of the *Wunma* and marine safety in general.

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CHAPTER 3: SUMMARY OF REPORT

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CHAPTER 3 SUMMARY OF REPORT

3.1 A HISTORY OF THE SHIP: CHAPTER 4

[1] When the *Wunma* was designed in the late 1990's, classed by Lloyd's Register in 1999 and registered in Queensland in 1999, a cyclone mooring was intended as an essential component of the ship's operation. The option of sending the *Wunma* to sea in cyclonic conditions was said in sworn evidence to be not viable. The safety of the ship and her crew was said to require a cyclone mooring.

[2] This Chapter outlines the events that led to the decommissioning of the cyclone mooring at Sweers Island and no new cyclone mooring taking its place. A fundamental change was made in the ship's authorised operations in the event of a cyclone. The option of heading into open waters, which once had been rejected as not viable and unsafe, became authorised in terms of the ship's registration and incorporated into her operating procedures.

3.2 THE SHIP'S OPERATIONS: CHAPTER 5

[3] The practice of not loading when there is a low pressure system in the Gulf was adopted over the years by certain Masters. It was an appropriate precaution. But it did not form part of the ship's written operating procedures. This was a major shortcoming in them.

[4] Despite Zinifex's obvious commercial interest in ensuring as many loads as possible were transferred to export vessels anchored or expected at the Roadstead, there is no reliable evidence that it adopted the practice of pressuring Masters to load and to undertake voyages when it was unsafe to do so. The evidence is that it did not adopt such a practice.

[5] The relevant members of the crew at the time of the incident were appropriately qualified and experienced. The Chief Mate, through no fault of his own, had limited experience in the use of the ship's communication systems, and limited experience of the ship in general, consisting of a four week period of induction between mid-December 2006 and 15 January 2007.

[6] The evidence was of a hard-working crew with many demands on their time.

[7] Programmed maintenance was displaced by the priority of going to and from an export vessel each day. This and other operational issues later identified in December 2006 by the Thompson Clarke Operational Review were not comprehensively addressed by the owners and the ship manager over the years. The focus of the ship's manager was on maintaining daily operations and doing its best to "live with" the materials handling plant and the ship as she was. This included a water management system that was prone to being blocked with ore concentrate.

[8] At the time of the incident, the ship was subject to three different cyclone procedures:

- the Cyclone Procedure in the ship's Safety & Quality System (SQS);
- the Zinifex Cyclone Procedure;
- the Port of Karumba Cyclone Contingency Plan.

[9] Each procedure was based upon a system of alert conditions. Although in general terms, the system of alerts have similar objectives in preparing the vessel to depart port and then proceed to sea, there is no consistency between the different alert conditions.

[10] The SQS Cyclone Procedure contained three options:

- Anchor off Karumba.
- Proceed to Weipa.
- Head for the open sea and remain in open waters until the cyclone has passed.

Each option had its limitations, and the second and third required the ship to take cyclone avoidance procedures in what has been described as "a marine cul-de-sac".

[11] Even more fundamental issues arose in the case of the *Wunma*:

- She was not designed to head into open waters during a cyclonic event, especially when in a loaded condition.
- The design and operation of her water management system made it unsafe to do so.

3.3 THE WATER MANAGEMENT SYSTEM: CHAPTER 6

[12] In theory, the ship was supposed to operate so that rain washed down dust from the canopy cover and any ore concentrate that was on the decks, with the "dirty water"

going into the dirty water tank, following which "clean water" was diverted into the sea. In practice, this was not possible because:

- the port deck below the conveyor belt was particularly prone to accumulate concentrate which depended for its removal upon crew shovelling and sweeping concentrate and generally cleaning the decks and drains of concentrate;
- the starboard deck tended to accumulate concentrate, although in smaller quantities than the port deck;
- the side deck drains and the valves which, if opened, would divert water to the sea, regularly became blocked;
- procedures to unblock them, if undertaken, were unlikely to be successful for very long;
- even if the side deck drains were free of concentrate, it is questionable whether they had the capacity to capture the large volume of water that might drop onto the deck through several, large downpipes, with the result that water that could not go directly down the drains was redirected to the aft well deck, which typically had concentrate on it.

[13] The operation of the ship's water management system should have been reviewed when consideration was being given to the proposal for the ship to voyage into open waters in order to avoid cyclones. The existence of blocked drains and valves on side decks and the limited capacity of those side drains to direct large volumes of rainwater to sea inevitably would lead to the accumulation of large quantities of water in the aft well-deck once the dirty water tanks were full. They could be expected to be full after a relatively short period of torrential rain.

[14] In the end result, the ship was granted a Class 2B certificate in September 2005, and her cyclone procedure was revised, to enable her to head into the open waters in the Gulf in cyclonic conditions without any proper analysis of the risk of the ship becoming, in effect, a receptacle for the large volume of rainwater that her water management system would collect during a long voyage in cyclonic conditions.

3.4 THE OPERATIONAL REVIEW BY THOMPSON CLARKE SHIPPING: CHAPTER 7

[15] The Thompson Clarke Operational Review Report in December 2006 posed some penetrating questions about the operation of the water management system in

cyclonic conditions. Unfortunately, it took the voyage of the *Wunma* on 6 and 7 February to answer them.

3.5 LOAD LINE AND RELATED DESIGN ISSUES: THE INGRESS OF WATER AND THE MEANS TO FREE IT: CHAPTER 8

[16] Compliance with statutory requirements for load line provided the occasion for "conditions of assignment" to be imposed to ensure the watertight integrity of the ship and to clear water that accumulates on decks. The process by which the ship was partially certified by Lloyd's Register in respect of its hull and machinery, but not certified by Lloyd's Register in respect of load line, permitted these issues to be neglected during the process of registration in 1999 and when the ship's registration was upgraded in 2005.

[17] These matters are directly relevant to the incident. One of the factors that led to the abandonment of the ship on 7 February 2007 was the loss of power and emergency systems following the flooding of the Emergency Generator Room. This flooding took place through a radiator vent that did not comply with the *USL Code*. The location of this vent and its potential to compromise marine safety seems to have been missed by all concerned prior to the incident.

[18] Insistence upon the installation of freeing ports so that the ship's conditions of assignment complied with the requirements of Section 7 of the *USL Code* would have brought into stark focus the competing objectives of:

(a) shedding water that may accumulate in the aft well deck via freeing ports in the interest of marine safety; and

(b) keeping water mixed with concentrate out of the marine environment.

[19] Those competing objectives remain to this day. So does the need for design solutions to address them. But regulatory arrangements that permitted the ship to be registered in circumstances in which its conditions of assignment did not comply with Section 7 of the *USL Code* meant that these issues were addressed by the Queensland registration authority after the incident, not before it. The fact that it took the incident to highlight the need to address the loading conditions for operating during cyclone seasons and the operation of the ship's water management system highlights significant shortcomings in regulatory arrangements at the time the ship was first registered in Queensland in 1999 and at the time her registration was upgraded in 2005.

3.6 SYSTEMIC ARRANGEMENTS AT THE TIME OF THE INCIDENT: CHAPTER 9

[20] As at February 2007, systemic arrangements jeopardised the safe operation of the ship in cyclonic conditions:

- A ship that was designed and initially intended to operate by having access to a cyclone mooring had no operational cyclone mooring to protect the ship, her crew and the marine environment.
- The ship's operating procedures did not reflect the sound practice of not loading when a low pressure system was in the Gulf in "cyclone season".
- The ship's SQS Cyclone Procedure and the Port of Karumba Cyclone Contingency Plan did not provide the option of the ship remaining alongside the Zinifex wharf with extra mooring lines, or the more contentious option of heading upstream in ballast and anchoring there.
- They required the ship to head to sea, but only after a certain alert status was declared when wind and tide conditions may have rendered it unsafe for the ship to navigate the channel, and in any case, when there may be insufficient time and searoom to engage in cyclone avoidance procedures against a cyclone heading in the direction of the South East part of the Gulf.
- The ship's water management system did not operate as it was designed to operate: her deck drains and valves were prone to being blocked with concentrate and, once blocked, the valves to sea could not be made operational without a major and time-consuming effort.
- The ship's design and equipment did not allow her to quickly rid herself of water that accumulated in the aft well deck.
- The ship was at risk of becoming, in effect, a receptacle for the large volume of rainwater that her water management system would collect during a long voyage in cyclonic conditions, and any seawater that she might take on board in heavy seas.
- If the ship was caught in a loaded condition when the cyclone threat eventuated, the risk to the safe operation of the ship was acute. As Mr Bundschuh explained in his evidence:

> "In a full load condition if you have a water management system that relies on keeping water on board, you are then in serious danger of actually overloading the vessel. That is the context in which the water management system has to come

into play to make sure that when operating in full load you are not going to keep on water that immerses the load line."[1]

[21] A ship that had been designed to operate in coastal waters in fair weather was authorised to go into open waters in foul weather. Without an overhaul of her water management system and loading conditions, any such voyage carried the risk of the ship having her load line immersed in cyclonic seas.

3.7 TROPICAL CYCLONE NELSON AND THE *WUNMA* AND THE COURSE OF EVENTS: CHAPTERS 10 AND 11

[22] These Chapters detail the course of events prior to incident that resulted in the ship being loaded when a tropical low was in the Gulf, being unable to discharge that cargo and having to undertake a voyage to avoid Tropical Cyclone Nelson. They give a basic account of decisions and events on the voyage, culminating in the abandonment of the ship on 7 February when her cargo hold was filled with water.

3.8 CRITICAL OPERATIONAL DECISIONS PRIOR TO THE VOYAGE: CHAPTER 12

[23] The decision to load on the morning of 3 February was made, and agreed to by her Master, when her Master and Inco's then Operations Manager at Karumba knew that a low was still over the Gulf, but predicted that it would cross over land. Such a prediction took inadequate account of the known erratic behaviour of cyclones in the Gulf.

[24] Inco's "minimum requirement" in the SQS to cease loading in the case of a Blue Alert simply was not good enough. Its prohibition on loading came far too late. The absence of a written operating procedure that would have prevented the ship from being loaded when a low pressure system, with the potential to develop into a cyclone, was in the Gulf, contributed to the loading of the ship, and therefore to the incident.

[25] The decision to return to Port to empty the ship's "dirty water tanks" significantly delayed the attempt to avoid the threatened cyclone. The practice approved by the ship's manager and owners was to return to port once the dirty water tanks were full. In the circumstances that prevailed on 4 February 2007, Captain Seal cannot be said to have acted inappropriately in following that practice.

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[1] T.767; see also T.770.

[26] The decision to depart Port and go to sea was a reasonable course of action in the difficult situation in which Captain Seal found himself on 5 February 2007. He cannot be fairly criticised for deciding to depart Port on the evening of 5 February 2007. His reasons for sailing the included predicted tidal surges. The course of going to sea in the event of a cyclone threat was encouraged by the ship's SQS cyclone procedure and the Port of Karumba Cyclone Contingency Plan.

[27] General preparations on 5 February were undertaken without the presence on board of a Chief Mate or a Second Mate. They came on board an hour or two prior to the ship's departure on 5 February. Their presence earlier in the day may have assisted in general preparations for the voyage into cyclonic conditions, and prompted questions about whether preparations contained in the SQS Cyclone Procedure, including its fuel requirements, had been met.

[28] Captain Seal failed to inform the Chief Engineer in sufficient time of the planned voyage North to enable additional fuel to be bunkered. Early consideration of the need to increase fuel reserves by Captain Seal or other members of the crew would have allowed additional fuel to be bunkered.

[29] Additional steps could and should have been taken to check whether the side deck drains were operational. Whether they were blocked or not could not be ascertained simply by looking at the control panel. To check them required the valves to be directed overboard and water run through the drains. Captain Seal was understandably reluctant to do this, due to the risk of sending concentrate into the marine environment. But even if this check had been done, and the valves found to be blocked with concentrate, it is unlikely that they could be serviced in time due to the time-consuming and difficult process of gaining access to them.

[30] The *Wunma* went to sea on 5 February with a number of side deck drains blocked, but this was principally due to shortcomings in the design and operation of its water management system. Systemic problems with the design of, and operating procedures for, the water management system prevented the ship being able to direct overboard the large the rainwater that the ship would encounter on the voyage.

3.9 THE VOYAGE: CHAPTER 13

[31] Prior to the critical decision at around 1140 hours on 6 February to turn South:

- There was an inexcusable failure to regularly obtain, record and analyse weather information.
- There was a consequential failure to plot the cyclone's position and path, and the ship's position in relation to the cyclone in order to assess appropriate cyclone avoidance measures.
- Only infrequent observations of wind direction and barometric pressure were made and recorded, and these inadequate observations did not facilitate the application of cyclone avoidance rules in the SQS.
- There was a failure to engage onshore assistance.

[32] The decision to turn South was a crucial decision that was made without obtaining adequate weather information, without plotting the path of the cyclone based on that information, without prior consultation with the Chief Mate or the Second Mate and without adequate consideration of its consequences. It was a decision that was made under pressure. But much of that pressure was self-imposed by Captain Seal's failure to obtain at an earlier stage on the morning of 6 February weather information from readily-available sources or to seek advice or assistance from the Designated Person Ashore.

[33] At around 1130 hours on 6 February 2007 the arrival of a "threat map" and a quick comparison between it and the one he had obtained before leaving Port led to a hasty assessment by Captain Seal of his position relative to what he understood to be the cyclone's path to be and a quick decision to turn South. The decision taken by Captain Seal to turn to the South was not an informed one.

[34] A decision was required about the merits of heading North as against turning South, re-crossing the cyclone's path at some stage and hopefully making enough distance to be sufficiently South of the cyclone's path to be able to avoid its impact.

[35] Even with the inadequate information in his possession at 1140 hours Captain Seal should have analysed the available information and the consequences of turning South. He was able to ascertain on the basis of the information in his possession that he was a substantial distance North of the cyclone's expected path. Turning South risked being pooped by following seas and the ingress of seawater into the well deck. The cyclone was predicted to move East-South East while intensifying and it might recurve even further to the South, as it in fact did later on 6 February. Turning

South involved turning back into what has been described as a "marine cul de sac". Last, but not least, turning South did not apply the cyclone avoidance procedures contained in the SQS or other publications.

[36] The decision to turn South came to be made at around 1140 hours because the need to make a decision about continuing North or turning South had not been confronted by Captain Seal much earlier. A decision to either continue North or to turn South with the main engines engaged having not been made much earlier on 6 February 2007, Captain Seal made a hasty decision at 1140 hours without adequate information, without adequate assessment of competing choices, without consultation with the other navigation officers and without adequate consideration of the consequences of the ship having a following sea.

[37] The decision at about 1140 hours on 6 February 2007 to turn South was a significant cause of the incident.

[38] The decisions later that afternoon to turn to the South South West and then to the West compounded the problems that had been produced by earlier decisions.

[39] Captain Seal can hardly be criticised for his decision to abandon ship, given his reasons for doing so. No party or witness has suggested that he should be. His reasons included the information conveyed to him by the *Eastern Star* which, if accurate, meant the ship and her crew were in serious danger. His decision to abandon ship on the basis of the information known to him, his evaluation of the situation and his concern for the safety and lives of his crew accorded with the SQS's guidance on the decision to abandon ship. It was a reasonable decision based on the information known to him at the time the ship was abandoned.

[40] The information that was conveyed to him from the *Eastern Star* made a significant contribution to his decision to abandon ship. Accordingly, it was *a* cause of the incident.

3.10 THE IMMEDIATE RESPONSE TO THE INCIDENT: CHAPTER 14

[41] The response to the incident including search and rescue procedures, salvage arrangements and the determination and provision of a port of safe haven was adequate and effective.

3.11 THE REMEDIAL RESPONSE TO THE INCIDENT: CHAPTER 15

[42] The remedial response to the incident was generally satisfactory. But there has been an unacceptable delay in satisfying two important conditions of class concerning modification of the emergency generator and the development and submission of a new stormwater management plan.

[43] Zinifex initially looked to Inco to progress these matters, and there were discussions between them and some basic engineering drawings were prepared. The lengthy delay in gaining Lloyd's approval to a matter as fundamental to the safety of the ship as her water management system cannot be justified.

[44] An application for a cyclone mooring buoy authority in the Norman River has only recently been made by Zinifex.

3.12 ENVIRONMENT: CHAPTER 16

[45] The expert evidence of Dr Mortimer and Professor Parry, as supported by a CSIRO study and a CSIRO Peer Review respectively, is that the incident did not cause any significant environmental impact so far as spillage of zinc concentrate is concerned. It is also the view taken by the EPA.

[46] The preservation of the Gulf as a unique and relatively pristine body of water serves a variety of private interests and the public interest. The public interest in preventing the spillage of cargo into the marine environment is reflected in both international conventions and domestic law. Spillage of the cargo of the *Wunma* into the marine environment should be avoided. The importance of that objective is not diminished by the fact that the spillage in February 2007 has not been shown to have produced any significant impact on the marine environment.

3.13 CAUSES OF THE MARINE INCIDENT: CHAPTER 17

[1] The Board's function is not to apportion responsibility for the incident, or make findings in terms of culpability. It is required to report on the causes of the marine incident.

[2] The following list of causes does not attempt to rank causes as major or minor, direct or indirect. The following list does not include contributing factors that played an insignificant part in the course of events.

(1) The absence of a cyclone mooring in the Norman River to replace the decommissioned cyclone mooring at Sweers Island.

(2) The absence of operating procedures to prevent the ship from being loaded when a low pressure system, with the potential to develop into a cyclone, was in the Gulf.

(3) The design and operation of the ship's water management system that enabled a large volume of water to accumulate in the aft well deck and cargo hold during a voyage in cyclonic conditions. In particular:

- the operation of the system so that rainwater that fell on the ship's canopy during heavy or prolonged rain would collect in the aft well deck rather than being directed overboard;
- the blockage of side deck drains with ore concentrate;
- the blockage of valves in side deck drains that might have been operated to direct water overboard after an initial "first flush" of dust from the canopy into "dirty water tanks";
- in general, the design and operation of the system so that it did not operate as a "first flush" system, namely with waste water from rain run off from the canopy being collected in "dirty water tanks", following which rainwater that fell on the ship's canopy would be directed overboard.

(5) The registration of the ship in 1999, and the upgrading of her registration in 2005:

- without adequate consideration of her compliance with Section 7 of the *USL Code*, particularly in respect of the entry of water into the well deck, arrangements to free water from the well deck, the location of the emergency generator room and the entry of water into the emergency generator room via its radiator vent;
- without adequate consideration of the need to store or discharge the volume of water that might accumulate in the hold during tropical downpours, in circumstances in which the ship was treated, for the purposes of assessing her stability, as having an open hold.

(6) The upgrading of the ship's registration in 2005, and the revision of her cyclone procedures to permit her to undertake voyages in the open waters of

the Gulf in the event of a cyclone, without a comprehensive risk analysis being undertaken of the ship's seakeeping properties in cyclonic conditions.

(7) The upgrading of the ship's registration in 2005, and the revision of her cyclone procedures to permit her to undertake voyages in the open waters of the Gulf in the event of a cyclone, without the imposition of loading conditions and a review of her water management system.

(8) The loading of the ship on 3 February 2007 when a low pressure system was in the Gulf.

(9) The practice of returning to port once the ship's "dirty water tanks" were full, which led to the ship returning to port on 4 February 2007, thereby delaying her departure until the "tidal window" on the night of 5 February 2007.

(10) The failure to take adequate steps on 5 February 2007, or beforehand, to prepare the ship and her crew for a prolonged voyage in open waters during cyclonic conditions, including:

- bunkering sufficient fuel to enable the ship to remain at sea for an extended period whilst operating all three of her engines;
- unblocking deck drains to permit, so far as possible, rainwater to be directed overboard through deck drains;
- familiarisation by navigation officers of procedures in the ship's Safety & Quality System to avoid cyclones at sea.

(11) The failure during the voyage that commenced on 5 February 2007, and particularly during the period prior to the decision at around 1140 hours on 6 February to turn South, to obtain current weather information by email or satellite phone. The consequential lack of plotting of the cyclone's position and path, and the ship's position in relation to the cyclone. The making and recording of only infrequent observations of wind direction and barometric pressure.

(12) In general the failure to apply the procedure to avoid cyclones at sea contained in the ship's Safety & Quality System (SQS 06; D 220) or similar procedures to avoid cyclones at sea.

(13) The decision of the Master at approximately 1140 hours on 6 February 2007 to turn South without:

- adequate current information about the cyclone's position and path;

- adequate analysis of the limited information that was on hand at 1140 hours;
- adequate consideration of the consequences of turning South;
- consultation with the Chief Mate, the Second Mate, the Designated Person Ashore or other persons ashore about the proposed course of action.

(14) The operation of the water management system during the ship's voyage that allowed a large volume of water to accumulate in the aft well deck and cargo hold.

(15) The absence on the aft well deck of freeing ports, thereby allowing the accumulation of a large volume of water in the aft well deck during the voyage in cyclonic conditions. Alternatively, the absence of an active pumping system appropriate to an open hold ship to rid the well deck of accumulated water.

(16) To a lesser extent, the blockage of a small drain in the aft well deck that prevented water that had accumulated in the aft well deck being directed overboard.

(17) The absence of adequate pumps to discharge water overboard.

(18) The failure of pumps to operate or to operate effectively due to blockages caused by concentrate.

(19) The entry of seawater over the stern, including through openings on either side of the stern ramp.

(20) The entry of seawater through holes in the portside canopy that had been caused by the impact of waves in cyclonic seas on materials that were incapable of withstanding the impact of waves.

(21) In general, the ingress of water into the ship's well deck whilst she was in a loaded condition at a rate greater than the capacity of pumps to discharge it overboard.

(22) The position of a radiator vent in the emergency generator room that permitted water that had accumulated in the aft well deck to enter the emergency generator room.

(23) The entry of water through a door to the emergency generator room which was not securely dogged.

(24) The shorting of a switchboard following the ingress of water into the emergency generator room.

(25) The total loss of power to the ship following the ingress of water into the emergency generator room.

(26) The consequent loss of power to various primary systems on the ship, including damage to and loss of power to certain communication systems.

(27) Difficulties experienced in the communication of advice and information that was relevant to the Master's decision to abandon ship.

(28) The communication of advice to the Master of the ship at around 0600 hours on 7 February 2007 to the effect that if the water level was higher than halfway up the stern ramp, the eventual loss of the ship was probable and that he should make preparations to abandon ship.

(29) The Master's evaluation of the situation on the morning of 7 February 2007 and how it was expected to develop, and his judgment that the safety and lives of the crew necessitated abandonment of the ship.

3.14 RECOMMENDATIONS: CHAPTER 18

[47] Numerous recommendations are set out in Chapter 18.

[48] They include the installation of a suitably engineered and suitably located single point cyclone mooring in the Norman River, cyclone contingency plans that address loading conditions and other matters in relation to the design and operation of the *Wunma*.

[49] Legislative and administrative changes are required to enhance the regulatory role of MSQ.

[50] Legislative and administrative changes should be made to end what was described as the "mix and match" system with "partial class approvals".

[51] A more comprehensive approach to assessment of the safe operation of a ship should be undertaken at the registration stage.

[52] Beyond the registration stage, MSQ has a restricted view of its powers as regulator. This is apparent in the view taken by its officers in 2005 that it was powerless to insist that the safe operation of the ship in the cyclone season required the ship to have access to an operational cyclone mooring. This approach is pressed in MSQ's submissions. If the safe operation of the ship required it to have a cyclone mooring in the Norman River or some other sheltered location, then MSQ as regulator should

have exercised its powers as regulator to enforce the safety obligation of the ship's operators. If there is any doubt about the power of MSQ to take steps to enforce what its officers consider is necessary in the interests of marine safety, then that doubt should be removed by legislative amendments.

[53] MSQ should revise its "hands off" approach to regulation.

[54] The Queensland Government should consider whether legislative, administrative and financial arrangements have led to a system of self regulation, and, if so, whether such a system serves the public interest.

3.15 CONCLUDING OBSERVATIONS: CHAPTER 19

[55] The focus was on strength and stability when the ship was designed. It remained the focus when the proposal was approved to permit the ship to ride out a cyclone in open waters. Strength and stability are vital. But they do not guarantee the safe operation of a ship such as the *Wunma* in cyclonic seas. The focus on strength and stability meant that little or no attention was given to the design and operation of the ship's water management system. Her design and operation turned the ship into a large water receptacle.

[56] Plenty of strength and stability did not make the ship seaworthy in the open waters of the Gulf. It certainly did not stop the water rising in the well deck on 6 February as the ship's crew battled to stop rising water levels. Plenty of strength and stability was not enough to ensure the safety of the ship or her crew.

[57] The crew deserve recognition. The engineering crew, and Mr Fisher in particular, deserve commendation for restoring power to the ship in extremely difficult circumstances after the blackout that occurred at the height of the cyclone. Criticisms are made in the report about certain operational decisions made by Captain Seal. But the evidence indicates that his composure and leadership at the height of the incident enabled the crew to remain calm and attend to their duties. During those hours the water level in the cargo hold was at one with the sea. The Chief Mate, the Second Mate and the Bosun observed flexing in the hull. Having seen this the Chief Mate feared that the ship might quickly sink. Despite the difficult situation in which they found themselves the crew remained calm, including crew members with little seagoing experience.

[58] This Report attempts to identify the systemic failures that permitted a ship with a dysfunctional water management system to venture into the open waters of the Gulf in a cyclone. The installation of a dedicated cyclone mooring in the Norman River and other remedial measures should ensure that the *Wunma* is not placed in that situation again. But unless the systemic arrangements that allowed the incident to happen are addressed, the lives of crew on other ships will be placed at unnecessary risk.

WUNMA BOARD OF INQUIRY

CHAPTER 4: A HISTORY OF THE SHIP

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WUNMA BOARD OF INQUIRY

CHAPTER 4 A HISTORY OF THE SHIP

4.1 THE CONCEPT OF A TRANSFER VESSEL

[1] The Century Mine at Lawn Hill was developed by Pasminco Century Mine Limited ("PCML"). Since 2004 it has been operated by Zinifex. The mine is situated about 250 kilometres north-north-west of Mt Isa. Lead and zinc ore is extracted from the mine and processed into concentrates. Approximately 200 tonnes of lead bearing concentrate and 2,500 tonnes of zinc bearing concentrate are produced daily by the mine.

[2] During the study phase of the project, a variety of road, rail, pipeline and shipping options to convey the concentrate to export vessels was evaluated by PCML. The most economic solution to emerge during the study phase of the project was for a slurry pipeline to the Gulf of Carpentaria.

[3] A submission by PCML to the Institution of Engineers Australia – Queensland Division "2000 Engineering Excellence Awards" summarises the selection of the Port of Karumba and the choice of a specially designed transfer vessel:

> "The port of the Karumba, situated in the southeast corner of the Gulf of Carpentaria, is the nearest established port to the mine that allows access to overseas markets. However, it is a shallow draft port and to berth 50,000 dwt bulk carriers required for exporting the concentrate, either a mothership concept, a several kilometre long conveyor or deep-water channel had to be constructed to allow product transfer to ocean vessels. None of these options were chosen for both technical and financial reasons, influenced strongly by consideration of cyclone conditions. A fourth option was to build a transfer vessel(s) which could carry smaller parcels of concentrate from a Karumba port facility out to overseas bulk carriers anchored anywhere between 12 – 20 nautical miles (22 – 37 kms) offshore. Design proceeded on this basis introducing an unusual feature into a mine development, namely that of a specifically designed special purpose vessel."[1]

[4] The various transfer vessel options considered by PCML included using tugs and dumb barges, multiple units of self-propelled, mini bulk carriers or a single, larger self-loading and self-discharging bulk carrier. The concept of a transfer vessel was not new. The *Aburri* serviced the McArthur River Mine in the Northern Territory.

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1 Exhibit 49; CB47, p.2.

[5] A proposal to use self-propelled, self-discharging vessels to transfer lead and zinc concentrate was described in Impact Assessment Study Reports for the Century Mine project in late 1994 and early 1995. In a draft Impact Assessment Study Report dated October 1994 reference was made to the use of two barges:

> "The proposed barges are likely to be 3,000t capacity self propelled, self-discharging vessels (90m long by 18m wide and a draught of 3.5m) (Figure 10.8) (While 3,000t capacity barges are likely, other barge sizes are still under consideration). Unladen craft will have a draft of 1.5m."[2]

[6] The IAS continued:

> "When not needed for cargo transfer, one barge will be moored at the loading facility. Additional facilities will be required for mooring of the second barge, and it is proposed that a swing mooring be provided in the Norman River upstream of the loading facility where adequate depth and river width exist."[3]

[7] In a March 1995 Response to IAS Submissions the following was stated in respect of cyclone contingency measures:

> "Barges would not proceed to sea if a low-pressure system (less than 1000Hpa) was developing, nor would export ships come into enclosed waters. Barges would be tied up at the wharf with extra lines, and the vessel would be ballasted down by flooding. The Norman River, with its deep water is a relatively 'safe haven' so barges within it are well placed in the event of a cyclone."

[8] The Impact Assessment studies published in late 1994 and early 1995 did not consider the risks associated with a single, larger transfer vessel, or the risks associated with any vessel being required to go to sea in the event of a cyclone.

[9] The original concept of having two vessels arose from considering the annual tonnage of concentrate to be conveyed from Karumba and comparisons with a similar barging operation on the McArthur River in the Northern Territory. The use of two vessels of a similar size to those used in the McArthur River operation was perceived to provide advantages of interchangeability. In August 1995, PCML undertook more detailed studies on the optimum number and size of transfer vessels. It was decided to use one larger vessel rather than two smaller vessels. The operating and capital costs of two vessels was substantially higher than a single

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2 IAS para 10.4.2; quoted in Exhibit 49, CB30; para 5.5 CB38.

3 IAS p.210; *ibid* para 5.6.

vessel and, accordingly, it was decided to proceed with a single vessel of 5,000 tonnes.

[10] The decision assumed that the larger, single transfer vessel would be able to use a cyclone mooring in the Norman River in the event of a cyclone.

4.2 THE DESIGN OF THE VESSEL

[11] The design of the transfer vessel commenced in 1996. The design brief specified that the design would need to provide for a draft that would enable the vessel to handle 1,000,000 tonnes per annum by transferring 5,000 dwt of zinc or lead concentrate to an export vessel anchored up to 20 nautical miles from the mouth of the Norman River in a maximum 18 hour cycle. A channel was to be dredged. Even with dredging, the entrance to the Norman River did not allow deep draft vessels to enter it. The transfer vessel would have to steam in a channel only 60 metres wide with a maximum draft of 3.85 metres fully laden.

[12] The ship's designer - ASDMAR Pty Ltd trading as Sea Transport Solutions ("ASDMAR") - concluded that the most suitable hull shape was a well deck ship with the following parameters:

Length	110.00 metres
Breadth	21.00 metres
Summer Loaded Draft	3.85 metres
Loaded Displacement	7,400 tonnes
Cargo Deadweight	5,050 tonnes

To meet these objectives it was necessary to keep the hull structure as light as possible within established criteria of weight, height and pressure heads.

[13] The vessel design incorporated a double hull to prevent spillage in the event of a stranding or collision. The distances between the inner and outer shells are approximately 3.5 metres port and starboard (producing void spaces) and 4.2 metres below (with the space being taken up with salt-water ballast tanks, void spaces, engine room and a pipe tunnel beneath the centre line of the hold). Its cargo hold is relatively small compared with the overall dimensions of the vessel. The void spaces enhance the vessel's stability. Studies undertaken by the designer prior to the construction of the ship are said to have indicated that the cargo hold could be filled with water but the vessel should remain afloat, provided no hull spaces were flooded.

[14] The design of the ship also incorporated features to minimise damage to the environment. One of these was an enclosed canopy over the hold space to prevent the escape of dust and also to protect the concentrate from rain. The canopy was designed to be constructed of lightweight material. An air circulation and dust scrubber system was incorporated to control dust.

[15] Another aspect of the design to prevent spills of concentrate, fuel and waste material was for rain and washdown water to be held in a collection water tank ("the dirty water tanks") and then discharged to the water treatment plant at the port facility.

[16] Because of its "clearly defined area of operation", Lloyd's Register of Shipping "Lloyd's Register") advised the designer on 14 January 1998 that a "reduced service notation of 0.8" would be accepted in association with the suggested service notation of "Coastal Service in the Gulf of Carpentaria".[4] Lloyd's Register's standard definition of "Coastal" is not generally exceeding 21 nautical miles offshore unless another definition of coastal is provided by local marine authorities.[5]

4.3 CONSTRUCTION AND DELIVERY OF THE SHIP

[17] Construction of the ship commenced in China in July 1998. The *Wunma* was launched on 16 April 1999 and named the *MV Wunma*. *Wunma* (pronounced "Woodma") is a word in the Lardil language group for a frigate bird that inhabits the waters of the Gulf.

[18] PCML took delivery of her in China on 22 August 1999. The ship sailed to Karumba, arriving on 18 September 1999. The first transfer of zinc concentrate was completed on 19 December 1999.

4.4 THE SYSTEM FOR REGISTRATION OF COMMERCIAL SHIPS IN QUEENSLAND

[19] The Queensland maritime safety legislation requires ships operating in Queensland waters, with some exceptions, to be registered.[6] Ships are registered according to their type: recreational, fishing or commercial.

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4 Exhibit 49, CB1.

5 Exhibit 96; Statement of Mr Bundschuh - 1 August 2007; Exhibit 94; para 65.

6 Section 56 of the *TOMS Act*; *Transport Operations (Marine Safety) Regulation* 2004 ("*TOMS Regulation*") Part 3, Division 4, s.60. One of the exceptions is a ship that must be, and is, registered under the *Shipping Registration Act* 1981 (Cth), and for which there is a current certificate of survey under the law of the Commonwealth.

[20] The *Wunma* was required to be registered as a commercial ship. Under Queensland legislation an application to first register a commercial ship must be accompanied by:

- Certificates of compliance for the whole ship from:
  - an accredited ship designer; and
  - an accredited ship builder or an accredited marine surveyor; or
- A design approval certificate and any other certificates of compliance for the design not covered by the design certificate, and certificates of compliance from an accredited ship builder or an accredited marine surveyor; or
- A current certificate of survey,[7] or an equivalent certificate issued by a law of the Commonwealth or another State or by a "classification society".[8]

[21] In essence, before a commercial ship can be registered in Queensland, an application for registration must be accompanied by certificates from accredited persons, or a current certificate of survey or a certificate that is equivalent to such a certificate that is issued under Australian law or by a "classification society". MSQ may become involved with a ship long before an application for registration is received. In this regard, Part 3 Division 3 of the *TOMS Regulation* provides for a person, typically a ship builder, to give notice to MSQ of the intention to build a ship, and to provide a certificate of compliance for design. In such a case, MSQ will create a file for the ship upon receipt of the notice of intention to build, even though it may be a substantial period before an application for registration with supporting documents is received in respect of the ship that has been constructed.

[22] The Queensland legislation creates an accreditation system that is administered by MSQ.[9] In summary:

- MSQ accredits appropriately skilled and qualified people as ship designers, ship builders or marine surveyors;
- The accreditations are limited to the categories of materials and systems used on board ships in which the person is qualified and skilled;

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7 Issued under s.70 of the *TOMS Regulation*. Such a certificate of survey may only be issued by the General Manager if the application is accompanied by, amongst other things, certain certificates for the design of the ship.

8 *TOMS Regulation*, 2004 s.65. In 1999 when the *Wunma* was first registered, the requirements for first registration of a commercial ship were contained in s.43 of the *Transport Operations (Marine Safety) Regulation* 1995, which is in similar terms.

9 Part 5, Division 4 of the *TOMS Act* and Part 3 of the *TOMS Regulation*.

- An accredited person may issue a certificate of compliance for a ship in the category for which the accredited person is accredited;[10]
- Such a certificate of compliance may be relied upon to support an application for first registration of a commercial ship, and the conditions specified on the declarations are generally transferred to and included as conditions on the registration certificate.

[23] The intent of the accreditation system is to ensure that accredited persons are appropriately skilled and qualified. Written applications are made by persons wishing to be accredited, followed by interviews and vetting of applications. An audit system for accredited persons exists in which their records are checked for compliance with the legislation. MSQ then relies upon certificates of compliance issued by accredited persons to satisfy the design and survey requirements to first register a commercial ship. Generally registrations are issued upon receipt of relevant certificates of compliance from accredited persons. An alternative registration procedure involves acceptance of certificates issued by a "classification society".

[24] Classification societies are international non-government organisations that promote the safety of ships and offshore structures. This is achieved by setting technical rules, confirming that designs and calculations meet these rules, surveying ships and structures during the process of construction and commissioning, and periodically surveying vessels to ensure that they continue to meet the rules. Vessels are classified according to the soundness of their structure and design for the purpose of the vessel within the intended area or areas of operation.

[25] All nations, including Australia, require that ships flying their flag meet certain standards. In most cases these standards are deemed to be met if the ship has the relevant certificate from a member of the International Association of Classification Societies. Classification societies may be authorised to inspect ships and other structures and issue certificates on behalf of the state under whose flag the ships are registered.

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[10] Generally speaking, an accredited designer will issue a certificate of compliance for design and/or stability; accredited builders will issue a certificate of compliance for building of hull, superstructure and/or machinery, and accredited surveyors will issue a certificate of compliance for survey and/or safety equipment.

[26] There are numerous classification organisations. The more significant ones that are recognized under Australian law are American Bureau of Shipping, Bureau Veritas, Det Norske Veritas, Germanischer Lloyd and Lloyd's Register of Shipping.

[27] Under the Queensland system, a ship owner or ship builder may elect to use a classification society to certify not only the structure and machinery of the ship but also statutory matters such as load line. It is up to the ship's owners and builders to decide whether to use a classification society for one or other aspects of the ship and, if they do so, they are not obliged to use the society for all aspects.[11] In practice, a classification society certificate can be accepted for every aspect of the ship's design and construction except where a provision is displaced by a legislative requirement. For instance, the *TOMS Act* creates safety equipment requirements.

[28] If a commercial ship is over 24 metres in load line length (as defined in Section 7 of the *Uniform Shipping Laws Code* ("USL Code") then a load line certificate is also required for the purpose of registration. In addition, with the exception of fishing ships and sheltered water passenger ships, all Queensland commercial ships that are over 24 metres in length require a load line certificate.

[29] Classification societies may issue International load line certificates on behalf of flag state administrations or a local load line certificate on behalf of Queensland which is not a flag state and, once issued for a Queensland ship, the certificate replaces the need for a load line certificate to be issued under the *TOMS Regulation*.[12] Section 118 of the *TOMS Regulation* applies the relevant parts of Section 7 of the *USL Code* to the assignment of freeboard.

4.5 REGISTRATION OF THE SHIP IN QUEENSLAND

[30] In 1998 the Maritime Safety Branch of Queensland Transport[13] had a separate unit headed by a Senior Naval Architect who handled ship design approval matters. On 1 April 1998 the designer of the ship, ASDMAR, wrote to the Senior Naval Architect and advised:

> "This vessel will be registered in Queensland, Class 2B and will operate mainly in the Gulf of Carpentaria. The vessel's function is to load zinc ore at the port of Karramba and carry it to an overseas Bulk Carrier anchored approx. 10 miles offshore. This vessel will then tie

11 Statement of Werner Bundschuh – 3 August 2007; Exhibit 94; para 36.
12 *TOMS Regulation*, s.115(2)(b).
13 The predecessor in name to MSQ.

> up to the overseas vessel and the unloading process will take place. There is one such cycle per 24 hours (loading 3hrs, steaming out 5 hours, unloading 4 hours, steaming back 5 hours, and waiting time in between).
>
> The vessel will be built to Lloyd's Register Class, who will approve the hull, machinery and electrical items (as well as any cargo gear)."[14]

[31] On 11 September 1998 the Executive Director (Maritime) advised the Principal Surveyor of Lloyd's Register in Shanghai of certain requirements for the ship to be registered in Queensland. At that stage Queensland Transport contemplated that certificates would be issued by Lloyd's Register including an International Load Line Certificate.[15]

[32] On 14 January 1999 the Senior Naval Architect corresponded with Captain Bruce Green, who was involved in supervising the vessel's construction in China, in relation to requirements for the ship's delivery voyage to Australia. This voyage required certificates and exemptions from AMSA. The letter also advised that, for Queensland Transport to register the vessel for use in Queensland, it would require the certificates listed in Queensland Transport's letter dated 11 September 1998 and an AMSA MARPOL Certificate.[16]

[33] Following telephone discussions between Lloyd's Register in Sydney and the Maritime Division of Queensland Transport, Lloyd's Register advised Queensland Transport on 16 February 1999:

> "… it is our understanding that as the vessel is not intended for international voyages, the requirements of the International Convention on Loadlines 1966 are not applicable in this case and therefore Lloyd's Register will not be issuing the International Load Line Certificate.
>
> Consequently, it is assumed that the vessel will be required to comply with the USL Code in respect of Loadlines and that the Loadline Certificate will be issued by Queensland Transport without any involvement from Lloyd's Register."[17]

[34] On 9 March 1999 the Senior Naval Architect advised various parties associated with the ship about the requirement for the vessel to obtain a load line certificate for Queensland waters. In summary, he advised that the system revolved around the

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14 MSQ registration file, folio 1; Exhibit 118.

15 MSQ registration file, folio 6; Exhibit 118.

16 MSQ registration file, folio 12; Exhibit 118. The same advice had been conveyed in a facsimile of 9 November 1998; MSQ registration file, folio 11; Exhibit 118.

17 Exhibit 49, CB6.

issuing of certificates by accredited people and that an accredited designer might issue a certificate of compliance for load lines. His letter included the following:

> "The accredited person can make decisions about what is an appropriate freeload (sic) deck for this ship based on calculations illustration (sic) that stability and damaged stability etc are acceptable. Previous similar ships may set precedents.
>
> If the ship is ever to operate outside of Queensland waters a Queensland "Certificate of Survey" will be required to
>
> (a) Gain AMSA approval for the voyage
>
> (b) Allow registration in another state.
>
> Any non compliances of the ship from the USL Code will need to be detailed on the "Certificate of Survey". The more non compliances, the harder it is to achieve a) and b). Thus non compliances should be kept to a minimum and so making the rear door watertight etc is a good investment."[18]

[35] AMSA advised the owner's representative on 26 March 1999 about its requirements for an exemption for the delivery voyage from China. AMSA stated:

> "As this vessel has a somewhat novel design, we will also need class to verify that means of preventing water entering the cargo well deck are adequate or that freeing arrangements are adequate (Jerry mentioned you have bilge arrangements in the cargo deck?) for the voyage. Additionally, we will need confirmation from class that the scantlings are adequate for the open sea voyage (Has vessel been designed for restricted sea conditions?)" [19]

"Class" is a reference to the classification society, in this case Lloyd's Register.

[36] What was described by AMSA as the ship's "somewhat novel design" and the need to verify that "means of preventing water entering the cargo well deck are adequate or that freeing arrangements are adequate" raised issues requiring consideration by AMSA in respect of the ship's delivery voyage and by the Maritime Division of Queensland Transport in connection with the proposal that the ship be registered for use in Queensland.

[37] In June 1999 Queensland Transport was requested to make a "policy decision" in relation to a load line certificate for the ship.[20] The policy issue related to the

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18 MSQ registration file, folio 20; Exhibit 118.

19 Exhibit 49, CB16.

20 MSQ registration file, folio 23; Exhibit 118.

acceptance of the concept of an "equivalent deck" for determining the freeboard to be assigned for load line purposes. The concept of an "equivalent deck" was not contained in the *USL Code* and Queensland Transport was asked whether it would accept such a concept as the registration authority that would receive the load line certificate. The policy decision was referred to the then Principal Advisor (Vessel Standards and Compliance), Mr Werner Bundschuh, who advised the Senior Naval Architect that the approach was reasonable.[21]

[38] An application for registration of the ship as a "transfer vessel" for Class 2C (rather than Class 2B, as previewed in April 1998) was made in August 1999.[22] A Certificate of Registration for Class 2C was issued on 25 August 1999.[23] The registration was issued following receipt of:[24]

- a Provisional Interim Certificate issued by Lloyd's Register in Shanghai on 18 August 1999 that certified the hull and machinery of the ship;[25]
- a Certificate of Compliance for Loadline issued by an accredited designer, ASDMAR, on 17 August 1999;[26]
- a Certificate of Compliance for Stability issued by ASDMAR on 18 August 1999;[27]
- a Certificate of Compliance for Safety Equipment issued on 20 August 1999.

[39] The Certificate of Compliance for Stability included a declaration that the ship had been assessed to be seaworthy for stability for the purpose of the "delivery voyage only" and in "restricted offshore waters". The Certificate of Compliance for Loadline similarly declared that the ship was seaworthy for load line for "restricted offshore waters".

[40] The Certificate of Registration that was issued on 25 August 1999[28] included a limit "not more than fifty (50) nautical miles from the coast". This reflected the standard limit of operational area for a Class 2C commercial ship.[29] The Certificate of Registration did not include as a condition compliance with the "conditions of class"

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21 Exhibit 94; paras 26 and 59.
22 Exhibit 49, CB25 and 26.
23 Exhibit 49, CB28.
24 Exhibit 49, CB25, 26, 27, 28; Exhibit 95; Exhibit 94, Part 4, p.5 Exhibit 118.
25 Exhibit 95; Exhibit 94, Part 4, p.5.
26 MSQ registration file; Exhibit 118.
27 MSQ registration file; Exhibit 118.
28 Exhibit 49, CB28.
29 *TOMS Regulation* 1995, s.79(3); *TOMS Regulation* 2004, s.108(4). These provisions define a different operational area if the ship is operating within the Great Barrier Reef Region or Torres Strait zone.

imposed by the classification society. This was treated by Queensland Transport as the owner's obligation and not stated on the registration certificate as a condition of registration. MSQ has subsequently adopted the approach of stating a requirement in a certificate of registration that the ship operate in accordance with the limits of class set by a classification society.[30]

4.6 THE "MIX AND MATCH" APPROACH TO REGISTRATION

[41] In 1999, prior to its registration, representatives of Queensland Transport liaised with Mr Stuart Ballantyne, the Managing Director of ASDMAR, and the ship's prospective owners about how the ship would be certificated and subsequently operated in Queensland. According to Mr Bundschuh, he made it clear that Queensland Transport preferred the ship to be classed and certified by Lloyd's Register to the fullest extent possible. This was to avoid some of the difficulties Mr Bundschuh said he has encountered with the "mix and match" approach that can happen with "partial class approvals".[31]

[42] The owners of the ship decided not to have Lloyd's Register issue a load line certificate.. Mr Bundschuh gave evidence concerning his "dismay" that Lloyd's did not issue a load line certificate such that Lloyd's Register was used "to only partially certify the ship".[32]

[43] The Provisional Interim Certificate issued by Lloyd's Register in Shanghai on 18 August 1999 was "for the purpose of the vessel's registration by the flag state administration only".[33] It contemplated a report being forwarded to the Committee of Lloyd's Register in London recommending the following class notation being made in its register book on completion of the construction survey:

> "Open hold Self Discharging Zinc Ore Carrier; Strengthened for Heavy Cargos; Coastal Services in the Gulf of Carpentaria." [34]

[44] The freeboard that was assigned by ASDMAR for the purposes of the load line certificate relied upon the concept of an "equivalent deck", which the Queensland registration authority accepted as a matter of policy. The classification society,

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30 Exhibit 94; paras 56 and 59.
31 Exhibit 94; para 56.
32 Exhibit 94; para 58.
33 Exhibit 95.
34 As already noted, Lloyd's Register defines "Coastal" as not generally exceeding 21 nautical miles offshore unless another definition of "Coastal" is provided by a local marine authority; Exhibit 96.

Lloyd's Register, had advised that it would not be issuing an International Load Line Certificate. It assumed that the ship would be required to comply with the *USL Code*. But the owner of the ship did not request Lloyd's Register to issue a certificate declaring that the ship complied with the *USL Code*. As a result, Lloyd's Register, as the classification society, was not required to address whether the ship's design and, in particular, its arrangements to free water entering the cargo well deck complied with the *USL Code*, and did not do so.

[45] Interestingly, the designer of the ship, Mr Ballantyne, assumed that the ship had been constructed with freeing ports at the stern ramp. In his witness statement he stated that there were about four of them, with a combined area of approximately two or three square metres that had flaps so that water could discharge freely into the sea, but so that water from waves could not wash into the well deck.[35] But freeing ports, either in that form or in some other form, were not installed in the aft well deck near the stern ramp. Presumably this was principally out of a concern that water being discharged through such freeing ports would be mixed with concentrate with adverse consequences for the environment. Further, the absence of freeing ports was said in July 1999 by Mr Dion Alston, a naval architect employed by ASDMAR, and who signed the Certificate of Compliance in August 1999, not to be essential to the ship's stability.

[46] The extent to which the requirements of the *USL Code* necessitated the installation of freeing ports in the aft well deck will be addressed later in this report.

4.7 THE INVOLVEMENT OF AMSA

[47] As already noted, in March 1999 AMSA had questioned in connection with the ship's delivery voyage whether the means of preventing water entering the cargo well deck and the freeing arrangements were adequate. It also raised issues concerning stability conditions for the delivery voyage.

[48] On 1 July 1999 Mr Alston advised the ship's manager, ISM, about these matters in a facsimile, a copy of which was sent to AMSA. Mr Alston's advice was that freeing ports in the well deck were not essential to the safety of the ship and that adequate margins of stability existed should the well deck become swamped. He advised that the hold was modelled with spill points at the top of the watertight seal on the stern

35 Exhibit 97; para 25.

door "allowing the liquid level to fall to this height". He advised that stability conditions were satisfied "with wide margins".[36]

[49] Mr Alston's facsimile further advised that Lloyd's Register had accepted a reduced service notation of 0.8 for Coastal Service in the Gulf of Carpentaria and had noted that delivery voyages required special consideration. Mr Alston advised that the main concern during the delivery voyage was the occurrence of slamming since the forward bottom strengthening requirements had been waived. He stated:

> "The delivery voyage should only be made in fair weather and caution should be exercised with regards speed, heading, and trim of the vessel to maintain immersion of the forefoot thereby avoiding slamming. The voyage plan is obviously of great importance in this matter also. Should conditions become extreme, the vessel should seek shelter, or the Master should take action to limit the effects of the weather as far as is practicable."[37]

[50] Preliminary delivery voyage conditions were prepared and Mr Alston noted that no deck cargo had been included. Subsequently, the Certificate of Compliance for Stability dated 18 August 1999 issued by him noted that the quantity of cargo the ship was to carry on its delivery voyage was limited to two deck containers of 10 tonnes each.

[51] A fax from Lloyd's Register to AMSA dated 19 August 1999 on the subject of *Report/Delivery Voyage Exemption* under the heading "*Load line and closing appliances*" includes the statement:

> "The shipyard is adding the gasket to the bottom of the stern ramp, and thus will be finished soon, we report to you immediately after the completion." [38]

[52] The voyage conditions that AMSA imposed upon the ship's delivery voyage are not in evidence but it seems likely that the exemption granted by AMSA was on the basis of the ship carrying little or no cargo and that the delivery voyage be undertaken in the kind of weather conditions advised by Mr Alston.

[53] AMSA's involvement was limited to the initial delivery voyage. It did not need to concern itself with the registration and seaworthiness of the ship when operating in

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36 Exhibit 49, CB16.
37 Exhibit 49, CB16.
38 Exhibit 49, CB24.

Queensland waters. Indeed, when reviewing the ship's stability data for the purpose of issuing an exemption for its delivery voyage, AMSA recorded concerns about the standards applied in the inclining experiment report and noted that if the ship's owner was to bring the ship under AMSA's survey, it would need to be re-inclined.[39]

4.8 OVERVIEW CONCERNING REGISTRATION

[54] The ship was registered initially on 25 August 1999 on the basis of certificates for stability and load line that contained declarations concerning its seaworthiness in "restricted offshore waters".

[55] The fact that the ship's initial registration in Queensland was achieved on the basis of a Lloyd's Register Provisional Interim Certificate that contemplated a class notation "Coastal Services in the Gulf of Carpentaria" is significant. This class invoked a Lloyd's Register definition for service not generally exceeding 21 nautical miles offshore. Lloyd's Register did not alter its class notation at any time prior to the incident.

[56] Accordingly, so far as the classification society was concerned, the ship was classed at all material times for service in a restricted offshore area not exceeding 21 nautical miles.

4.9 A "FAR FROM A TYPICAL SEAGOING EXAMPLE"

[57] The ship's limited operating profile was not only reflected in the Provisional Interim Certificate issued by Lloyd's Register in 1999 and the conditions of its registration, it featured in communications and decisions concerning the crewing of the vessel.

[58] On 30 March 1999 ISM wrote to Queensland Transport concerning crewing certificates. It advised that the operation of the ship was "far from a typical seagoing example". The letter stated that the vessel's operation was "within a geographic area no more than 26 miles offshore and no more than 18.5 miles outside of Karumba Port limits" and that its operations would be conducted on up to 200 operational days per annum "undertaking an identical passage and schedule" of approximately 16 hours' duration.[40] ISM sought a "Safe Manning Certificate" with the Master and the mate each having a Master Class 4 certificate and the Chief Engineer holding a Marine Engine Driver Class 2 certificate.

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39 Exhibit 49, CB24.

40 MSQ registration file, folio 22; Exhibit 118.

[59] This application for an exemption from crewing requirements became the subject of internal communications within the Maritime Safety Division of Queensland Transport. For instance, the Regional Harbour Master (Cairns), Captain Alan Boath, agreed that the vessel's normal area of operation within 30 nautical miles of the port performing identical round voyages of only 16 hours duration required "skills suited to masters with ship handling knowledge, and restricted inshore navigational skills, more generally found in holders of lower classification state issued certificates".[41] In addition, reliance was placed upon the fact that the crew had experience in similar operations in the Northern Territory and that a cyclone mooring had been located at Sweers Island.

[60] On 12 October 1999 the Director (Maritime Services), Captain Arthur Diack, forwarded a Memorandum to Captain Boath concerning the proposed crewing exemption. The Memorandum reviewed previous advice concerning qualified engineering staff and concluded with the following pertinent observation:

> "From a more general standpoint, it is clear that this proposal to reduce the crewing standards has important implications for the safety of the vessel and also for the general application of the regulation. The very limited area of operations severely restricts the options available to the vessel in emergency situations. For example, with the formation of a cyclone options other than going to a cyclone mooring may be preferable, i.e., proceeding to Weipa or to shelter in Northern Territory waters. Both of these would be precluded. To address these and other concerns, I believe that ISM should provide **an overall risk assessment of the proposed operation** showing clearly how safety standards will be preserved, what conditions would be imposed to compensate adequately for the reduced crewing standards and how foreseeable risks will be prepared for."[42] (Emphasis added)

[61] In the end result, changes to the qualifications of Masters in subsequent years and prior to the incident lead to the appointment of a Master Class 1. This meant that the specific concerns raised in Captain Diack's Memorandum concerning the operational limitations placed upon certain classes of Master did not apply in the circumstances of the incident. However, Captain Diack's general observations concerning the restricted options available to the vessel in emergency situations were apposite. His suggestion that ISM should provide an "overall risk assessment for the proposed operation" was not taken up at the time or subsequently.

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41 Exhibit 90; para 9; Exhibit 49, CB15.

42 Exhibit 49, CB31.

4.10 CYCLONE MOORINGS

[62] Because the ship's area of operation was in a cyclone area, a cyclone mooring was intended as an essential part of the vessel's original operation.

[63] PCML's submission to the "2000 Engineering Excellence Awards" of The Institution of Engineers Australia – Queensland Division outlined the following matters in connection with a cyclone mooring:

- Karumba is prone to cyclones.
- Based on a mine life of 20 years, it is reasonably certain that Karumba would have several cyclones during that period.
- The Department of Transport insists that all large vessels should proceed to sea in the event of a cyclone.
- The shallow water and unsurveyed areas around the Gulf Region make it dangerous for small vessels if they become trapped by a cyclone in the southern part of the Gulf.
- The long lead-time required running north to escape a cyclone may cause frequent closure of the mine, particularly if the stockpile is close to capacity.
- The wharf was designed for normal operations and not over-designed to cater for cyclone events.
- A cyclone mooring was originally planned for the Norman River upstream from the wharf but subsequent surveys indicated there was insufficient depth in the river for the required swing circle.
- Investigator Road between Bentinck and Sweers Islands, being approximately 70 nautical miles from Karumba, is within 12 hours steaming of the Port.
- In the event of a cyclone warning reaching Category 1 (cyclone expected within 24 hours), the vessel will cease operations and proceed to the mooring.[43]

[64] It will be necessary to address a number of these matters in greater detail.

[65] By mid-1998 consultants to PCML were engaged in discussions with Queensland Transport about a suitable location for a cyclone mooring in the Norman River. On 29 July 1998 Captain Watkinson, Captain Boath, Captain Diack and Mr Rod Ridley

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[43] Exhibit 49; CB47.

(Manager, Hydrographic Services, Department of Transport) met at Karumba with PCML's consultant, Mr Campbell Smith, to discuss PCML's proposed location for a cyclone mooring in the Norman River.

[66] At this meeting. Mr Smith advised that PCML had decided to use only one vessel for its transfer operation. He explained that the ship would have a length of 110 metres and a draught of 3.8 metres. On learning this, issues arose about whether a cyclone mooring in the Norman River for such a ship was feasible because:

- a hydrographic survey of the Norman River produced in October 1997 showed that the shallow water extended further into the river than previously indicated in a 1967 hydrographic survey;
- a cyclone mooring in what had previously been the proposed position - some 240 metres upstream from the proposed wharf - was not possible because there was insufficient swing room during cyclonic conditions;
- the positioning of a cyclone mooring adjacent to the proposed wharf would require the cyclone mooring to be positioned in the middle of the channel and that would create a potential marine hazard;
- an alternative proposal to moor the ship fore and aft in deep water approximately 4.6 nautical miles up the Norman River would not require any swing room, but this option created the risk that the ship would be exposed to weather conditions from all directions with an increased likelihood of damage to the vessel.[44]

[67] Captain Boath gave evidence in the Inquiry that one of the locations for the cyclone mooring considered at that time was sufficient if the ship was in an unloaded state.[45] However, according to Captain Boath, the consultants to the project did not know whether they would be able to provide the ship in a light condition within sufficient time.[46] In a loaded condition, the ship was at risk of grounding in a shallow area that protruded about 35 metres into the swing circle of a single point mooring.[47] There was also discussion about a facility to discharge the vessel at the wharf once loaded, but no such facility has ever been established.

[68] Further investigations identified another possible site for a piled mooring closer to

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44 Affidavit of Captain Diack dated 3 November 1999; Exhibit 49, CB34, para 8.
45 Captain Boath; T.713; T.738.
46 Captain Boath; T.714–715.
47 Exhibit 49, CB4.

the wharf. Approval was obtained from the Department of Environment and Heritage on 15 February 1999 to install a single point mooring. However, a hydrographic survey of the area commissioned by PCML in February 1999 showed that, in the event of a cyclone, the swing circle of the ship could create a potentially serious safety problem.[48] The water was of sufficient depth in this position but the swing circle would bring the stern of the vessel to within 20 metres of the wharf. There was an additional issue of whether other vessels would be able to bypass her in the river.[49]

[69] Another site that was identified was located a substantial distance upstream from the wharf at the mouth of Russell Creek, where there was a relatively deep hole. The proposal in this case was for a two point mooring which would have required the ship to be held by lines secured from the bow to one mooring and from the stern to the other. This proposal did not require the swing room required by a single point mooring because the ship would be essentially held in the direction of the current.[50] But the disadvantages of a two point mooring was the risk of cyclonic winds coming beam on and concerns that the dust canopy might be damaged. Although Captain Diack, considered this to be a viable option, he recalled that PCML's preference was that the ship should be on a swing mooring so that its bow could be kept to the weather.[51]

[70] In the end result, PCML identified a location in the Wellesley Islands group between Bentinck and Sweers Islands called Investigator Road. The history of that location and the enduring relationship of indigenous Australians with it is described in detail in other places.[52] It was described by Justice Cooper of the Federal Court of Australia in a decision delivered on 23 March 2004 which recognised that native title existed over areas of sea surrounding the Wellesley Islands group.[53] Justice Cooper's 2004 decision was the culmination of a process that began on 12 March 1996 when a claim was lodged with the National Native Title Tribunal.

[71] An account of the history of European encounters with the place that was named

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48 Affidavit of Mr Smith - 2 November 1999; Exhibit 49, CB33, para 29(e) and CS4 to that affidavit; see also Exhibit 49, CB4.

49 Statement of Arthur Diack - 13 August 2007; Exhibit 80; para 5; Captain Diack; T.899–900.

50 Exhibit 80, Part 2, para 6; Captain Diack; T.900.

51 Statement of Captain Diack - Exhibit 80; para 14.

52 These include Memott and Channells *Living on Saltwater Country: Southern Gulf of Carpentaria Sea* Country *Management, Needs and Issues*; National Oceans Office (2004).

53 *The* Lardil *Peoples v State of Queensland* [2004] FCA 298.

"Investigator's Road" by Captain Matthew Flinders is also beyond the scope of this report. Flinders anchored there in the *Investigator* on 21 November 1802 and described it in his journal as "well sheltered".

[72] The extent to which the anchorage at Investigator Road provides an accessible and safe mooring during extreme weather remains a subject of controversy. In 1999 *The Australian Pilot* described the anchorage at Investigator Road as being:

> "the only secure anchorage at the head of the Gulf of Carpentaria for vessels throughout the year. It is sheltered from prevailing winds, E by Sweers Island and W and N by Fowler and Bentinck Islands. The roadstead to it is spacious and easy of access from S, having a broad and clear passage leading to it".[54]

[73] Others have questioned its safety. For instance, the Board received a letter from a long time resident of Karumba, Mr Bill Rutherford, President of the local Progress Association and Secretary of the Karumba Volunteer Marine Rescue Unit. Mr Rutherford recounted an experience in 1976 when he went to the anchorage for shelter and "found it unsafe and dangerous".[55]

[74] Ms Kelly Osmand visited the location on occasions between 1999 and 2003 when working on fishing boats. She described the area in which the cyclone mooring buoy was located as quite narrow with a number of rocks. Having moored there in fishing boats, she said that it could be quite an exposed mooring.[56]

[75] A former Master of the *Wumna*, Captain Frank Thomson, described the location as "not the best of places" and not as good as having a cyclone mooring in the Norman River, but at least providing protection in every direction except if a cyclone was coming back off the land.[57] He explained that wind coming from that direction came over land and shallow water and would not get much fetch. But he explained that from the bridge of the *Wunma* you could look back and see the reef and it looked "awfully close". Like many other witnesses, Captain Thomson had not been in the anchorage during a cyclone and could not comment on the strength of the mooring, but he observed "if you moved, you did not have much time to get out of trouble".[58]

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54 Annexure "CS5" to the affidavit of Mr Smith; Exhibit 49, CB33.
55 Exhibit 121
56 Exhibit 38; paras 61 and 62.
57 Statement of Captain Thomson – 8 August 2007 - Exhibit 9; para 27.
58 Captain Thomson; T.31.

[76] In 1999 PCML chose Investigator Road as the most suitable location for a cyclone mooring for the *Wunma* during a cyclone because:

- it was marked on Australian Chart Aus303 as a safe anchoring area and was also described in *The Australian Pilot* as a safe anchorage;
- PCML's consultant, Mr Smith, was informed by Captain Peter Oestreich, from the Australian Reef Pilots, that the anchorage had been used in the past by cargo vessels unable to enter Karumba because of bad weather and that Captain Oestreich had used the anchorage in the past;
- the mooring was to be sheltered from heavy seas from all directions and whilst greater swells could be expected from the south, if they had persisted from that direction, the distance from the mainland was such that large swells were not anticipated;
- the location was the closest to Karumba that could offer a safe mooring, being 70 nautical miles north-west of Karumba and taking the *Wunma* approximately 12 hours to mobilise travel and make fast to the mooring. The next closest locations for a mooring were:
  - the Sir Edward Pellew group of islands, approximately 260 nautical miles north-west of Karumba; or
  - Weipa, approximately 310 nautical miles to the north;

  which were both too far in the event of a cyclone approaching;
- Investigator Road met the criteria of safety and proximity having deep water, a large swing circle, reasonable shelter from wind and sea and being within 12 hours standing of Karumba.[59]

[77] On 12 July 1999 PCML applied to Queensland Transport for a buoy mooring authority at Investigator Road.[60] In support of the application PCML advised that the wharf facility was not sufficiently strong to allow the vessel to stay alongside in a cyclone, there was insufficient swing room in the Norman River for the vessel to anchor or place a mooring and that proceeding to sea may put the ship and crew in danger.[61] The mooring application was processed and a restricted buoy mooring authority, CK-005, was issued on 6 August 1999.[62] On 12 August 1999 Captain Boath agreed to the extension of time within which to lay the mooring.

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59 Affidavit of Mr Smith, Exhibit 49, CB33, para 31.
60 Affidavit of Mr Smith, supra, para 40; [1999] FCA 1633 para [3]; CB125.
61 Exhibit 49, CB125.
62 CB125; [1999] FCA 1633 para [5].

[78] On 25 October 1999 claimants to native title rights and interests in part of the seas and submerged lands at the Gulf of Carpentaria who were applicants in the Federal Court proceedings filed a notice of motion seeking certain orders including that the restricted buoy mooring authority be declared invalid, that PCML and its contractors be restrained from constructing or authorising the construction of the cyclone mooring and that the State of Queensland be restrained from extending, renewing and/or re-issuing the restricted buoy mooring authority.

[79] The determination of the application for injunctive relief turned on technical issues concerning the procedural rights conferred by the *Native Title Act* 1993 on native title claimants.[63] Because the application for injunctive relief was determined on that basis, Justice Cooper did not address in his judgment factual matters concerning the safety and necessity of the cyclone mooring proposed at Investigator Road. However, PCML and the State of Queensland filed affidavits in relation to those issues that are relevant to the issues about which the Board is required to inquire.

[80] On 2 November 1999 Mr Smith, swore an affidavit in support of the location of a cyclone mooring at Investigator Road. He detailed other options that had been considered and rejected by PCML. These included:

- The Karumba Wharf was rejected because, under the Cyclone Contingency Plan at the Port of Karumba issued by the Department of Transport, the ship would have to put to sea when the cyclone was forming.
- The Roadstead was said to offer "no protection for the *Wunma* in the event of a cyclone".
- There were no sites along the route between Karumba and the Roadstead that were suitable for anchoring in the event of a cyclone.
- A suitable position for a buoy mooring in the Norman River could not be found, for the reasons previously outlined.

[81] The following sworn evidence was given by Mr Smith about the option of going to sea:

> "The option of sending the *Wunma* to sea is not viable due to:
>
> (i) the shallow waters in the Gulf and the substantial unsurveyed areas in the southern part of the Gulf;

63 *Lardil People v State of Queensland* [1999] FCA 1633; for a commentary on the decision see Beckett "Federal Court Strikes Blow to Protections for Native Title Claimants" [2000] ILB 40.

(ii) the inherent risks such as running aground or colliding with another vessel, associated with the vessel being subjected to cyclonic winds and high seas in open water."[64]

[82] Captain Diack, who was then the Director (Maritime Safety) employed in the Maritime Division of Queensland Transport, swore an affidavit on 3 November 1999. In it, he explained that the *Wunma's* planned response to the threat of a cyclone was limited because:

- investigations of a cyclone mooring in the Norman River had not revealed a feasible location;
- there was no place within the Port of Karumba where a vessel the size of the *Wunma* could be safely anchored or moored to ride out a cyclone because of the need of the vessel to swing through 360º to lie head to wind at all times;
- the Port Cyclone Contingency Plan required large vessels such as the *Wunma* to proceed to sea in the event of a cyclone;
- cyclones form in the middle of the Gulf and their direction of travel was frequently between easterly and southerly, placing Karumba and consequently any ship leaving Karumba potentially in the dangerous quadrant of the cyclone. He explained that, to avoid a cyclone, a ship leaving Karumba would need to travel around behind the cyclone, either by going west and then north, or going directly north, depending on the predicted movement of the cyclone, but the *Wunma's* Class 2C classification inhibited her ability to move clear of the dangerous semi-circle of the cyclone.[65]

[83] Captain Diack concluded:

> "It is highly desirable for the *Wunma* to have an established cyclone mooring in a relatively sheltered position."

[84] Because of the application for an injunction before the Federal Court, PCML voluntarily suspended the installation of the cyclone mooring. However this meant that the mooring was not placed within the period allowed for in the original authority, the authority lapsed. A further application was lodged and notification of the application was given to interested parties under the *Native Title Act* 1993. On 7 December 1999 representatives for the native title claimants in the Federal Court

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64 Affidavit of Mr Smith; Exhibit 49, CB33, para 29.

65 Affidavit of Captain Diack dated 3 November 1999; Exhibit 49, CB34.

proceedings and the CLCAC made extensive submissions in writing concerning the proposed issuing of a restricted buoy mooring authority.[66]

[85] On 9 December 1999 Captain Diack provided a Memorandum to the Acting Executive Director (Maritime) that recommended that a restricted buoy mooring authority issued on the grounds of the safety of the vessel.[67] In it, Captain Diack advised that, without the availability of the mooring, the vessel would be constrained to seek shelter, probably within the island group which is the nearest shelter to the operating area, and lie to anchor, "a much less secure situation with a much higher potential to cause adverse impact to the environment". He considered that the vessel should be able to use the mooring in any state of loading "as the formation of a cyclone can happen very rapidly" and that the best situation in fact would be for the vessel to be loaded as it would be easy to control and would lie better at the mooring and be less affected by wind. Alternatively, he said, the ship should be deeply ballasted. This advice was accepted and on 16 December 1999 a restricted buoy mooring was issued.[68] The authority expired on 16 December 2000.

[86] The cyclone mooring was installed by the end of 2000, and it remained a matter of controversy.

[87] An application to renew the authority was made by PCML on 11 December 2000.[69] On 15 December 2000 a new restricted buoy mooring authority was issued. The Statement of Reasons dated 15 December 2000 served to highlight the necessity for a cyclone mooring buoy in order to ensure the safe operation of the *Wunma*. [70] The findings on material questions of fact expressed in the Statement included that the area of operation of the *Wunma* was prone to cyclone activity, that mooring the vessel in the river would pose a significant risk to marine safety and that much of the south-eastern section of the Gulf is inadequately surveyed. It noted the classification limits of the vessel to 50 nautical miles off the coast. It stated that alternative cyclone mooring locations at Weipa and the Sir Edward Pellew group of islands were significantly more distant from the vessel's area of operation. Investigator Road was said to be recognised as a suitable site for a cyclone mooring.

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66 Exhibit 49, CB38.
67 Exhibit 49, CB40.
68 *Ibid*, CB44.
69 *Ibid*, CB52.
70 Exhibit 49, CB54.

[88] The Reasons for the decision to renew the buoy mooring authority included the following statements:

- "Cyclone activity in the *Wunma's* area of operation represents a clear threat to the safety of the vessel, crew and to the marine environment";
- "To provide an adequate level of safety during a cyclone the vessel must have a suitably constructed and located mooring to which it can be secured";
- "The Port of Karumba and the Norman River do not provide adequate space to safely site a mooring of the *Wunma* where it can be safely anchored or moored to ride out a cyclone";
- "The cyclone contingency plan for the Port of Karumba requires large vessels including the *Wunma* to proceed to sea when it is evident a cyclone is forming and to head north to place their vessel in the northern quadrant of the depression forming the cyclone";
- "The current status of surveyed areas in the south eastern section of the Gulf of Carpentaria restricts a vessel's ability to avoid a cyclone by moving out to sea"; and
- The "*Wunma's* capacity is further restricted by the limit placed on the distance it can move from the shore".

[89] In subsequent years, further applications for a cyclone buoy mooring authority were made and granted for similar reasons.

4.11 OVERVIEW – THE NEED FOR A CYCLONE MOORING

[90] The sworn evidence given on behalf of PCML and the Department of Transport in the Federal Court proceedings serves to highlight that a cyclone mooring was considered essential for the safe operation of the ship. In granting a restricted buoy mooring authority in December 1999 and in renewing it in subsequent years, Queensland Transport officials emphasised that:

- Cyclone activity in the *Wunma's* area of operation represented a clear threat to the safety of the vessel, its crew and to the marine environment.
- To provide an adequate level of safety during a cyclone the vessel had to have a suitably constructed and located mooring to which it could be secured.

[91] During this period the representatives of PCML and Queensland Transport did not regard the option of sending the ship to sea in the event of cyclonic activity as

viable. In fact, the option of sending the ship to sea was treated as carrying risks that necessitated a cyclone mooring for the ship in a relatively sheltered position.

[92] Their position that a cyclone mooring was needed in the face of the "clear threat to the safety of the vessel, crew and to the marine environment" from cyclonic activity in the ship's area of operation provides a background against which to review proposals that later emerged to discontinue the use of the cyclone mooring at Sweers Island and to permit the ship to go to sea in the open waters of the Gulf during a cyclone.

4.12 PROPOSALS TO DISCONTINUE THE USE OF THE CYCLONE MOORING AT SWEERS ISLAND AND TO ALLOW THE SHIP TO HEAD INTO OPEN WATERS IN A CYCLONE

[93] As the following account of events indicates, pressure to discontinue use of the cyclone mooring at Sweers Island was exerted through two channels by representatives of indigenous communities; first, by direct representations to PCML and subsequently Zinifex seeking the removal of the mooring and, secondly, by representations to the EPA.

[94] On 30 November 1999 the legal representatives for the native title claimants and the CLCAC wrote to the EPA requesting, among other things, that the EPA require PCML to carry out an environmental investigation into the construction and operation of the cyclone mooring.[71] They contended that the establishment and use of the mooring at Investigator Road, Sweers Island, in cyclonic conditions by a vessel carrying lead and zinc concentrate was an activity likely to cause serious and/or material environmental harm. The submission referred to the general sensitivity of the marine environment and the special significance of the area to Aboriginal communities. The operation of a barge in cyclonic conditions, with the consequential risk of spillage of concentrate, was said to create more than a remote possibility of harm to an area of high conservation value and special significance, and affect the cultural, social and economic well-being of the local Aboriginal community.

[95] PCML was offered an opportunity by the EPA to comment on the matter and responded through its lawyers in February 2000.[72]

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71 Statement of Mr O'Connor – 27 July 2007 – Exhibit 44; para 4.

72 *Ibid*; para 5.

[96] In mid-2000 the lawyers for the native title claimants and the CLCAC provided two substantial reports to the EPA. The first was titled "Submission to Queensland Environmental Protection Authority concerning Pasminco's Cyclone Mooring in Investigator Road" and was prepared by Associate Professor Paul Memmett.[73] The second was a report dated September 2000 by Dr Peter Cowell titled "Assessment of information on the cyclone mooring and its operation: Investigator Road, Wellesley Islands, Gulf of Carpentaria".[74]

[97] In response to these submissions the EPA commissioned two reports as to the potential impacts of the cyclone mooring buoy. These reports were prepared in October 2001. The first was entitled "Potential Impact of Cyclone Buoy Mooring on Cultural and Heritage Values of Indigenous People: A Risk Based Approach" by Mr Peter Bindon.[75] The second was entitled "Potential Impact of Cyclone Buoy Mooring on Resource Quality in a Channel between Bentinck and Sweers Island in the Gulf of Carpentaria – A Risk Based Approach" by Dr Krishna Srivastava.[76]

[98] On 7 December 2001 the EPA decided that it would not be reasonable to require PCML to carry out an environmental investigation pursuant to s.323 of the Act.[77] However, based on legal advice, the EPA later revoked that decision. The effect of the revocation was that the EPA was taken not to have made a decision as to whether PCML was required to undertake an environmental audit or environmental investigation of its cyclone mooring buoy. This change of the EPA's position was communicated to the representatives for the native title claimants and CLCAC in March 2002, who were invited to make further submissions regarding the reports that the EPA had commissioned.

[99] On 11 July 2002 the legal representatives for the native title claimants and the CLCAC lodged further submissions with the EPA requesting that PCML be required to undertake an environmental impact assessment and a social impact assessment in relation to the cyclone mooring. These submissions relied upon the following reports:

- *A Critique of a Cultural Heritage Impact Assessment of a Cyclone Buoy Mooring, Investigator Road, South Wellesley Islands* prepared by Associate

73 Ibid; para 6.
74 *Ibid*; para 7 and Exhibit GJO-01.
75 *Ibid*; para 9 and Exhibit GJO-02.
76 *Ibid*; para 9 and Exhibit GJO-03.
77 Exhibit 49, CB60.

Professor Memmett in April 2002.[78]

- *Errors and Misconceptions in Queensland EPA Risk Analysis of the Wunma Cyclone Contingency Plan: Investigator Road, Wellesley Islands, Gulf of Carpentaria* prepared by Dr Cowell in June 2002.[79]

[100] A lengthy period elapsed in the EPA's consideration of the matter. The reasons for its delay are unexplained. In the meantime, representatives of Gulf Aboriginal communities raised their concerns directly with PCML.

[101] On 29 November 2002 the Managing Director of ISM, Captain Andrew Dally, forwarded an email to the Regional Harbour Master, Captain Boath in relation to the cyclone mooring, in which he stated:

> "This issue has arisen as a result of Gulf Communities representatives conducting a sit-in at Century Mine. The present cyclone mooring for MV Wunma at Sweers Island was tabled as an issue and the Gulf Communities representatives are seeking the mooring be removed from its present location.
>
> To determine alternative contingency plan in the event of a cyclone Pasminco has contracted Intercontinental to develop a full plan. Campbell Smith will be assisting Intercontinental with the proposal. Note that account must be taken of statements in Court proceedings between various parties. The following options are to be explored:
>
> 1. Relocate the mooring to a position in the river that was previously considered plausible provided the vessel was in ballast.
>
> 2. Modify the existing wharf in Karumba with additional moorings if necessary to ensure suitability in a TRS.
>
> 3. Develop a contingency plan that may include point 1 or 2 and consider a variety of options including actions to outrun or seek a port of refuge like Weipa.
>
> The proposal will consider the most recent data available from Bureau of Meteorology and explore the need to conduct environmental impact studies."[80]

[102] On 17 December 2002 Captain Dally again wrote to Captain Boath about "possible options available to PCML to move the current cyclone mooring in Investigator

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78 *Ibid*; para11 and Exhibit GJO-04.

79 *Ibid*; para 11 and Exhibit GJO-05.

80 Exhibit 49, CB66. The restricted buoy mooring authority was renewed on 12 December 2002: Exhibit 49, CB63.

Road to some area close to Karumba". The most favoured option was said to be in the Norman River as close to the buoys as possible, and it was noted that Captain Boath had recommended a survey of the river to be undertaken to ensure that there was sufficient water in the river to allow for the mooring at full ballast draft.[81]

[103] The evidence indicates that such a survey was not able to be undertaken. Although Captain Boath contacted the Hydrographic Survey Section which provided a quote for its services and this was passed on to ISM, unfortunately, the Hydrographic Services Unit ran out of time and personnel, did not have a suitable vessel to conduct the required surveys in the river, and the surveys were not progressed.[82]

[104] In late August 2003, the EPA sought advice from PCML on the operation of the *Wunma* under cyclonic conditions and its use of the cyclone mooring buoys.[83] PCML's Manager of External Affairs, Mr Kent Quigley, responded by letter on 15 September 2003.[84] Remarkably, in that response, Mr Quigley claimed that "Extreme weather patterns were taken into account during the design of the vessel" and that the ship had a "Totally enclosed cargo hold to prevent escape of mineral concentrate". The letter enclosed extracts from ISM's Safety and Quality System which, at the relevant time, provided for the ship to depart for the cyclone mooring at Sweers Island in the event of a Red Alert. Curiously, it attached a PCML Cyclone Procedure for the ship which contemplated, in addition to heading to the cyclone mooring, the option of "heading to sea".

[105] The status of this PCML Cyclone Procedure in 2003 is unexplained and the document itself describes its status as a draft. It is difficult to reconcile with the cyclone procedure in the SQS and equally difficult to know whether the option of "heading to sea" could be reconciled with the ship's Class 2C registration insofar as the option of heading to sea contemplated cyclone avoidance navigation in open waters which might take the ship more than 50 nautical miles from shore. In any event, if the PCML Cyclone Procedure was operative in late 2003, it was replaced in May 2004 by a Cyclone Procedure issued by Zinifex[85], which likewise gave the alternatives of either heading to sea or to the cyclone mooring depending on the position and direction of the Tropical Revolving Storm.

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81 Exhibit 49, CB64.
82 Captain Boath; T.715.
83 Exhibit 44; para 12.
84 Exhibit 49, CB67.
85 Exhibit 11.

[106] On 10 December 2003 Mr Smith wrote to Captain Boath. He described himself as having been directly retained by ISM as operators of the *Wunma* and indirectly by PCML as owners of the *Wunma* "to review vessel operational procedures in the event of a cyclone approaching Karumba".[86] Copies of the letter were sent to Mr Quigley, Captain Dally, and to ISM's Operations Manager at Karumba, Captain Heath Daniel. The contents of Mr Smith's letter are to be contrasted with his sworn evidence in the Federal Court proceedings before Justice Cooper concerning the necessity of a cyclone mooring and the safe operation of the ship.

[107] In the letter, Mr Smith asserted that, in the four years in which the vessel had been in operation, ISM had gained very valuable experience in her handling characteristics in the river, channel and at sea. He continued:

> "ISM believe that their operational experience now precludes the necessity to utilise the cyclone mooring as they are confident that, with new procedures to be included in the Shipboard Safety Manual, they will be able to handle any cyclone event either by anchoring in the river, anchoring outside the river, proceeding to Weipa or riding out the cyclone in the Gulf of Carpentaria".

[108] Mr Smith also noted that the Department of Transport filed an affidavit in the Federal Court proceedings and that its support was based on safety concerns, including the lack of space in the Norman River to lay a suitable mooring. Mr Smith said that with four years' experience of operating in the area, the operators believed that alternative arrangements could be made.

[109] Mr Smith attached three draft procedures. The first was described as a standard wet season procedure and had the objective "to ensure that the vessel will have nil cargo on board in the event of a cyclone occurring in the Gulf of Carpentaria". It involved monitoring weather conditions and assessing if conditions were worsening. The second was a sailing procedure in the event of a cyclone. The third was a procedure for avoiding cyclones at sea.

[110] Mr Smith's assertion that operational experience precluded the necessity to use a cyclone mooring is difficult to reconcile with the contents of his affidavit in the Federal Court proceedings which clearly put that a cyclone mooring was an essential feature of the ship's safe operation. There had been no suggestion there that the need for a cyclone mooring would cease once the crew obtained operational

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86 Exhibit 49, CB68.

experience. It might be said that operational experience entitled Mr Smith to change his mind about the necessity of a cyclone mooring but, if it did, his letter did not explain what this operational experience was. The letter did not refer to operational experience gained in cyclonic conditions. In fact, the letter reported that no cyclone events had occurred which necessitated the ship proceeding to the cyclone mooring.

[111] It is impossible to reasonably conclude that the ship's daily routine of going to and from the Roadstead in conditions that usually were suitable for discharge operations provided the kind of operational experience that precluded use of a cyclone mooring, and which equipped the ship and its crew to ride out cyclones in the Gulf.

[112] On 9 February 2004 Captain Boath met with Mr Smith to discuss the cyclone mooring and PCML's interest in removing it. Captain Boath advised Mr Smith that he would not be prepared to endorse such a course without some certainty that the vessel's procedures were effective and that experience to date indicated they were "severely deficient". Captain Boath cited the example of the episode in March 2003 when, during cyclonic activity, the *Wunma* returned to port due to a lack of fuel when the relevant cyclone alert did not permit it to do so.[87] Captain Boath also said he believed sustained operations placed too much of a burden on the crew and needed to be reviewed.[88]

[113] By April 2004 Zinifex had become impatient about Captain Boath's failure to provide a written response to the draft procedures that had been sent to him.[89] In due course, a meeting was arranged with Captain Boath in Brisbane on 14 July 2004. The day after that meeting Mr Smith circulated to Captain Dally and Captain Daniel his thoughts on the meeting with an invitation to change or add to this account of it. The record of the meeting is illuminating in terms of the advice which Captain Boath gave concerning the need for a cyclone mooring. Its contents were reflected in a subsequent letter to Captain Boath which the Board finds to be a fair and accurate account of the state of play in mid July 2004.

> "1. As close as a week ago, Alan was still somewhat 'hostile' although acknowledging that Management had changed. He brought up the March 2003 incident and also fatigue

87 Exhibit 49, CB73, T.736.
88 Exhibit 49, CB73.
89 Exhibit 49, CB76.

management as the two main issues, as well as his problem with previous management.

2. I think the face to face meeting yesterday, although late in the piece (after all the attempts to set it up) was none the less very encouraging as there was a definite move on Alan's part to offer a compromise. This was the way we worked together in the days of the Wunma project and hopefully will be maintained in the future.

3. He foresees a problem with the Wunma having no cyclone moorings as there will have to be an extremely strong case that not only would safety not be compromised, but in fact would be improved.

4. He feels the best solution is for Zinifex to have a mooring in the Norman River, a discharging system at the wharf to cater for those times when the Wunma may be caught with product on board when a cyclone is approaching, and procedures in place to move to the mooring in the river.

5. He acknowledges that it may be a rare occasion when the vessel is caught with product on board especially if the Met Office supply adequate warnings as per their custom today. In this case, I think the compromise will be that they will not push for a discharge system but will rely instead on the mooring plus adequate procedures.

6. If Zinifex give up the buoy mooring permit, QDOT will insist on the current moorings being removed. They could not be left for local population to use as they would need a buoy mooring permit, and to get that they have to nominate a vessel which will use it.

7. Zinifex will have to put up a good case in the first instance not to use a cyclone mooring to ensure that it is not ditched at the first approach. In other words the approach to QDOT must be made with safety in mind and a case must be argued clearly for change.

8. If the mooring permit is just allowed to expire, QDOT may not be able to do anything in the first instance (reactive legislation, not proactive). However if ever there was an incident, then they would hit ISM/Zinifex with everything. He does not advise following this method as that would put everyone offside immediately.

9. Other matters were discussed such as crew rosters, fatigue management, however he did not seem to have as much problem with this matter as obviously changes had been made to operations.

10. It is suggested that the first step is for Zinifex to write to QDOT re changes required and giving reasons. They in turn will review

> affidavits presented to Native Tribunal to see where the major areas of concern lie. They are very conscious of the fact that they made representation to the Court based on safety (there were three separate affidavits) and it will be very difficult to argue for changes to their earlier arguments about safety unless it can be shown that, after 5 years operating experience, the method proposed is shown to be safer and is acknowledged by QDOT that that is correct.
>
> 11. He mentioned that no doubt an EIS will have to be completed and the local residents placated if a mooring was to be placed in the River."[90]

[114] Captain Boath's advice in July 2004 was vindicated by subsequent events. In July 2007, some three years after Captain Boath gave his advice concerning the need to have a mooring in the Norman River, a discharging system at the wharf to cater for those times when the *Wunma* may be caught with cargo on board when a cyclone is approaching and adequate procedures, Zinifex appointed the Australian Maritime College ("AMC") to investigate and report on these matters. The AMC, in its report following the first phase of its investigation, reached much the same conclusion, namely that the safest place for the ship, her crew and the environment was a dedicated cyclone mooring in the Norman River.[91]

[115] However, in July 2004, Captain Boath's advice was not exactly what Zinifex wanted.[92] Its then Operations Manager, Mr Walter Newton, said as much in an email to fellow Zinifex employees on 17 July 2004.[93] On 19 July 2004, Mr Quigley, the Group Manager – Stakeholder Relations & Reputation Management for Zinifex recommended to other Zinifex personnel that Zinifex continue to progress the removal of the mooring. His email stated:

> "The State Government maintains a high level of nervousness with possible exposure to compensation on cultural and environmental grounds. I will arrange a meeting with EPA and Crown Law to look at pathways forward that provide a level of comfort with the Government."[94]

[116] At this time, the EPA was still considering the request made by lawyers acting on behalf of the native title holders and the CLCAC to require an environmental investigation under the *Environmental Protection Act* 1994 concerning the use of the

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90 Exhibit 49, CB77.
91 Exhibit 124.
92 Exhibit 49, CB77.
93 Exhibit 49, CB77.
94 Exhibit 49, CB77.

cyclone mooring buoy at Investigator Road in cyclonic conditions. On 28 July 2004 the EPA engaged Captain Dale Cole of Dale Cole & Associates Pty Ltd to undertake a "Maritime Risk Assessment" for use by the EPA in determining the likely impact on the environment associated with the use or non-use of the cyclone mooring buoy at Investigator Road.[95]

[117] On 6 September 2004 Captain Watkinson and Captain John Ellyett of MSQ attended a meeting at the offices of the EPA at which Mr O'Connor and Captain Cole provided an overview of the request made of the EPA along with an outline of Captain Cole's work. An EPA minute of the meeting records that MSQ emphasised the need to ensure that operational procedures were protective of the *Wunma* crew and that, if written procedures were revised, MSQ would expect Zinifex to obtain advice from the vessel's designer on the adequacy of the changed procedures.[96] Captain Watkinson advised the meeting that Captain Cole's advice was "generalist" and that he could not agree with it because of the survey limitations on the ship and the nature of the voyages that the ship performed, namely operating in the Gulf of Carpentaria.[97]

[118] A week later – on 13 September 2004 – a meeting was held at MSQ's offices in Brisbane. Those present included Mr Bundschuh, Captain Ellyett, Mr Quigley, Captain Dally and Captain Daniel.

[119] The outcome of that meeting was a commitment by Captain Ellyett to respond to the draft operating procedures. Mr Ballantyne is said to have agreed to provide Mr Bundschuh with design information to allow a change to the vessel's registration certificate that would allow it to proceed into the Gulf waters outside its Class 2C classification.[98] Mr Ballantyne's evidence is that he did not attend the meeting that day at MSQ's offices, but that he met with Captain Dally, Captain Ellyett and Mr Quigley at a restaurant where the main discussions were between Mr Quigley and Captain Dally.[99]

[120] The outcome of the meeting on 13 September 2004 was that Zinifex perceived that, with the new arrangements in place, MSQ had "no issues with the cyclone mooring

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95 Exhibit 49, CB80.
96 Exhibit 49, CB85.
97 Exhibit 119; para 27.
98 Exhibit 49, CB88.
99 Mr Ballantyne; T.813-816.

buoy and its removal from the vessel's operating procedures" in a cyclone.[100] An email written the day after the meeting recorded:

> "All parties agreed to fast track this process to allow the new procedures to be endorsed and ratified before the start of the new cyclone season."[101]

[121] On 13 September 2004 and after the meeting with MSQ, the representatives of Zinifex met with the EPA in relation with the mooring buoy issue and advised of their progress with MSQ. It seems that this advice found favour with the EPA as it would "negate actions" placed on them by the legal representatives of the native title holders.[102]

[122] As anticipated, Captain Ellyett wrote to ISM about the draft procedures which had been tabled at the meeting on 13 September 2004. MSQ noted that its comments should not be viewed as an endorsement of the procedures but that MSQ was able to "add to the value by providing constructive criticism of supplied documentation"[103]. Amongst Captain Ellyett's comments was an observation about an apparent inconsistency between a draft procedure that required nil cargo to be on board and another procedure that had the objective of ensuring that the vessel's cargo did not present a risk to the environment. There were various other comments following which the letter concluded:

> "In MSQ's opinion, if the following conditions are met there is no requirement for the vessel to utilize the dedicated cyclone mooring:
>
> - Class and the Naval Architects are satisfied that the vessel can deal with a cyclone at certain speed and so on.
> - If the vessel is to travel outside the 2C operational area it is appropriately registered or exempted for such operation.
> - The vessel is manned in accordance with a vessel that may temporarily operate outside its normal 2C operational area.
> - The vessel's owners and managers advise MSQ that the above requirements prior to the vessels (sic) being required to ride out or avoid a cyclonic event have been met."

[123] On 10 September 2004 Lloyd's Register in Singapore issued a Certificate of Class

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100 Exhibit 49, CB89.
101 *Ibid*.
102 Exhibit 49, CB88.
103 Exhibit 49, CB90.

which again assigned the class "Coastal Service in the Gulf of Carpentaria". The certificate was issued on 10 September 2004 and was said to be valid until 31 August 2009. [104]

[124] In October 2004, the ship's manager – which on 23 September 2004 had changed its name from Intercontinental Shipping Management Pty Ltd to Inco Ships Pty Ltd ("Inco") - negotiated with Lloyd's Register in Sydney about changes to the operating parameters. However, the scope of Lloyd's appraisal was limited to an assessment to verify, or otherwise, that the vessel's global strength was adequate for the intended service, and a local strength assessment.[105] The Lloyd's appraisal did not include an assessment of the ship's manoeuvring or powering. Rather, it was concerned with the strength of the vessel, including whether its structure could cope with slamming into waves. In the course of engaging Lloyd's Register to conduct a "global strength assessment" and a "local strength assessment", Inco informed Zinifex:

> "The original design of the vessel was based on sea condition data supplied by WBM/Sea Transport. In the event of a cyclone it was intended the vessel would use the mooring buoy and be protected."[106]

[125] On 15 November 2004, Lloyd's Register in Sydney issued its report.[107] Its analysis was based on the assumption that the ship had a draft forward of 3.8 metres. It concluded:

> "If the Owner should decide to keep the ship sailing during the cyclone event, it would be the Master's decision to maintain the course and range from the shore assuming that the ship will sail in the Gulf of Carpentaria."[108]

[126] Inco advised Zinifex that the Lloyd's report was "good news" that enabled it to work towards "gaining final approval to remove the mooring".[109] These and other references in the contemporaneous documents indicate that the purpose of seeking an amendment to the ship's registration certificate from MSQ to enable the ship to go into open waters to avoid a cyclone and was not to provide an option in addition to use of the cyclone mooring at Sweers Island. Rather, it was sought for the purpose of removing the mooring.

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104 Exhibit 49, CB87.
105 Exhibit 49, CB91.
106 Exhibit 49, CB92.
107 Exhibit 49, CB98.
108 Exhibit 49, CB98.
109 Exhibit 49, CB94.

[127] On 8 December 2004 a meeting was held between Captain Diack, Captain Boath and Captain Daniel to discuss the draft cyclone procedures. At that meeting, Captain Boath recorded his disagreement with the contents of Captain Ellyett's letter of 17 September 2004.[110]

[128] In December 2004 the restricted buoy mooring authority was renewed.[111]

[129] On 16 December 2004 Lloyd' Register provided further advice by email to Inco in connection with the proposed changes to the ship's operating parameters. This was necessary because, during subsequent discussions with Sea Transport Solutions ("STS"), it was mentioned that it was unlikely that the ship would be fully loaded during a cyclone, there being "a much greater probability that she would be in ballast". Lloyd's Register therefore agreed to rerun its calculations using a draft forward of 2.493 metres corresponding to the ballast condition (as against the loaded draft of 3.8 metres).

[130] Lloyd's Register's reported by way of a letter to Inco dated 25 January 2005.[112] It stated that two independent methods were used to assess local strength. The first found that the bottom of the bow did not need to be strengthened for impact. The second showed that in the ballast condition there was a marked increase in the value of the relative vertical motion of the bow which, when taking into account the reduced draft forward, would result in an increased probability of the bottom slamming in the forward region. The letter advised Inco:

> "… As previously advised, our analysis shows that under slamming conditions the most affected area is in the region of FR55, with the plating and longitudinal stiffening being approximately 15% under the Rule requirement. It should be noted that again no problem was found with the strength of the primary structure.
>
> One solution would be to add additional intercostal longitudinal stiffeners between and parallel to the existing longitudinals from Frames 50-55, however as the vessel has just completed a docking it is appreciated that this probably isn't an option.
>
> Taking into account the review findings, a more acceptable alternative may be to trial the Wunma during the cyclone period at the reduced draught, on the understanding that the vessel could experience environmental conditions that cause bottom slamming fwd, with the

110 Exhibit 49, CB95.
111 Exhibit 49, CB96.
112 Exhibit 49, CB99.

> possibility that this may result in permanent deformation of the plating (particularly in the vicinity of FR55). However on the basis of the reserve of strength of the primary members, it is considered unlikely that the setting in of the plating would result in damage that would render the fwd structure unseaworthy.
>
> Notwithstanding the above we would remind you that it remains the responsibility of the owner to operate the vessel in a safe manner under all environmental conditions and should it be decided to operate the vessel as detailed above they should be made aware of the associated risk of damage to the bow." (Emphasis added)

[131] On 2 February 2005 STS forwarded each of the Lloyd's Register assessments to Queensland Transport in two separate facsimiles.[113] Its first facsimile of 2 February 2005 confirmed that STS had been contacted by ISM regarding "the proposal to heave to in the Gulf of Carpentaria in the event of a cyclone". This was said to be Inco's preference "to retreating to a fixed cyclone mooring, due to a number of external factors". The facsimile noted that this was outside the original conditions of the Lloyd's Register design approval, but the Lloyd's Register assessment of 15 November 2004 was provided for the consideration of Queensland Transport. This facsimile concluded:

> "As you can appreciate this is a special case, outside the scope of our Queensland Transport Accreditation. As such we seek your guidance, and trust that you can assist in determining a way in which the vessel's registration may be modified, to allow the vessel to operate outside its normal service conditions, under ballast in the special circumstance of a Cyclone."[114]

[132] In its second facsimile of 2 February 2005, STS forwarded a copy of the Lloyd's Register letter of 25 January 2005 concerning its review of the ship's local strength in a ballast condition.[115]

[133] On 14 February Mr Bundschuh sent a facsimile to Captain Boath in which he noted the proposal of the operators of the *Wunma* to "take the ship further off shore than is currently permitted by the ship's Class 2C operating limits". The facsimile advised:

> "This is also outside the conditions of this ship's Certificate of Class from Lloyd's Register."

[134] Mr Bundschuh proposed an amendment to the Class 2C registration conditions to

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113 Exhibit 49, CB98 and CB99.
114 Exhibit 49, CB98.
115 Exhibit 49, CB99.

allow voyages beyond 50 nautical miles from the coast to avoid cyclone conditions subject to the following conditions:

- Operation beyond 50 nm limited to Gulf of Carpentaria.
- Operate in accordance with limits of class set by Lloyds Register.

[135] Mr Bundschuh's proposal is difficult to understand. The limits of class set by Lloyd's Register were for an operation in "Coastal Service" which meant in waters not exceeding 21 nautical miles from the coast. Therefore, an amendment to the Class 2C registration that required the ship to operate within the limits of class set by Lloyd's Register would not permit her to operate beyond 21 nautical miles in the Gulf of Carpentaria.[116]

[136] In any event, Captain Boath responded by advising Mr Bundschuh in writing on 25 February 2005 of his "strong opposition to any extension of operating limits for this vessel in a cyclone event".[117] Captain Boath noted that he had discussed the matter with Captain Diack who would be taking it up with Mr Bundschuh directly.

[137] On the morning of 25 February 2005 a meeting was held at MSQ's offices in Brisbane. It was attended by Captain Watkinson, Captain Diack, Mr Bundschuh, two representatives of the EPA and Captain Cole. The purpose of the meeting was for the EPA to provide a background in relation to the matter prior to Mr Cole finalising his risk assessment on the use of the buoy at Sweers Island.

[138] The EPA's minutes of the meeting record that issues in relation to the safety of the vessel and its crew were emphasised by Captains Watkinson and Diack. It records that MSQ considered that the most appropriate course of action would be to reclassify the ship to Class 2B and that, under such a classification, "the cyclone buoy mooring would no longer be required, the ship would head to sea under approaching cyclonic conditions". Mr Bundschuh is reported as having advised the meeting that Zinifex would need to apply for the change and that a naval architect would need to certify the change. He advised that these matters were "relatively straight forward".[118]

[139] Captain Diack recalls that the basis of the meeting was that Captain Cole had

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116 Exhibit 49, CB121.
117 Exhibit 49, CB101.
118 Exhibit 49, CB100.

undertaken a risk analysis of the *Wunma* going to sea to ride out a cyclone, and determined that he had determined that it was an acceptable risk. The meeting was told that Lloyd's Register had reviewed the strength of the ship's hull and determined that she could operate at reduced speed in cyclonic conditions at sea. However, Captain Diack's view was that this was not an acceptable risk.[119]

[140] On 25 February 2005 Mr Bundschuh responded to Captain Boath's advice. He advised that he had not pursued the option of amending the Class 2C registration but indicated the alternative course of having the owner formally apply to upgrade the vessel from Class 2C to Class 2B service. The restricted Class 2B service category was said by Mr Bundschuh to "give the Master more options (within the formal limits of the vessel's certification by MSQ) for responding to a cyclone warning." Mr Bundschuh anticipated that this would not alleviate Captain Boath's concerns that led to his advice to not extend the Class 2C certificate.[120]

[141] Captain Diack gave evidence that in 2005, through dealings with Captain Daniel, he became aware that Inco and Zinifex wished to discontinue the use of the cyclone mooring at Sweers Island and that, in lieu thereof, strengthening the hull of the ship so she would be able to go to sea to ride out a cyclone. Captain Diack said that he was completely against the proposal, as was Captain Boath. He considered that the cyclone mooring at Sweers Island should remain an integral part of the ship's cyclone contingency plan and that this opinion was made very clear to Captain Daniel.[121] Whilst Captain Diack and Captain Boath believed that a cyclone mooring was essential, the view was taken that MSQ did not have the power to require any specific action to be taken by a ship's Master or owner, including the use of the cyclone buoy. The view was taken that all MSQ could require was that the ship have an adequate plan for all contingencies that the ship may encounter.[122] This is a narrow view of MSQ's power to enforce the general safety obligations of the ship's owners and operators. If, as MSQ had stated over the years in affidavits and other official documents, the safe operation of the ship required her to have access to a cyclone mooring if the need arose, then MSQ should have taken the stand that the owners and operators were required to have an operational cyclone mooring, whether at Sweers Island or some other location. But at the time, the view was taken

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119 Exhibit 80; para 17.
120 Exhibit 49, CB102.
121 Exhibit 80; para 50.
122 Exhibit 80; para 16.

by MSQ that it did not have the power to insist that a cyclone mooring be established for the safe operation of the ship.

[142] On 11 May 2005 a letter, prepared by Mr Bundschuh and signed by him on behalf of Captain Watkinson, was sent to Inco in response to STS's facsimiles of 2 February 2005. It sought advice regarding alterations to the certification of the ship that would allow her "to heave to in the Gulf of Carpentaria in the event of a cyclone". The letter noted that the advice Lloyd's Register of 25 January 2005 indicated that the ship's current Lloyd's classification for coastal service in the Gulf of Carpentaria was adequate in terms of the strength of the vessel, and the environmental conditions that could be experienced, but that bottom slamming could result in "permanent deformation of the plating (particularly in the vicinity of FR55)". The letter advised that MSQ had given careful consideration to the registration options and concluded that the most appropriate course was to upgrade the ship by adding *USL Code* Class 2B Service, restricted to offshore operations within the Gulf of Carpentaria, and then outlined the certificates of compliance that were required for the upgrade. It also reminded Inco of the obligation on the owner and the Master to operate the vessel in a safe manner.

[143] The conclusion of the letter identified an important division of responsibilities within MSQ's administration. It advised that matters in relation to the upgrade in registration and load line issues were to be directed to Mr Bundschuh. Any operational issues or options arising from the suggested registration changes were to be discussed with Captain Boath.[123]

[144] In late August 2005 the ship registration section of MSQ received an application to "upgrade" the registration of the ship to Class 2B. The application to change the ship's registration particulars stated:

> "Upgrade Class 2B (restricted to offshore operations within the Gulf of Carpentaria)"

The Certificate of Compliance for Loadline that was submitted by STS for the purpose of obtaining the upgrade in registration included a declaration that the ship was seaworthy for load line in accordance with the *TOMS Act* on the condition:

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123 Exhibit 49, CB106.

> "Class 2B Restricted Offshore operations within the Gulf of Carpentaria."

[145] The term "Restricted Offshore" usually applies to a Class 2C rather than a Class 2B operational area. Mr Bundschuh's evidence was that this reference should have been referred back by MSQ to the accredited designer for clarification in processing the application.[124] The obvious intent of the application was for a Class 2B registration that was subject to conditions. The reference to "Restricted Offshore operations" may have been intended to refer to operations that were restricted to the Gulf or restricted to certain conditions.

[146] In any event, the registration section of MSQ processed the application without seeking or obtaining a Certificate from Lloyd's Register that extended the ship's conditions of classification beyond "Coastal Service in the Gulf of Carpentaria". Instead, the registration section appeared to treat the reports from Lloyd's Register that it had received via the STS of 2 February 2005 concerning the global and local strength of the ship as, in effect, a certificate from Lloyd's Register that certified the ship beyond "Coastal Service". Lloyd's Register had not issued such a certificate. The certificate granted on 10 September 2004 was for "Coastal Service in the Gulf of Carpentaria".[125] MSQ, and Mr Bundschuh in particular, treated the global and local strength assessments undertaken by Lloyd's Register as having given an assurance "that the ship was structurally up to standard".[126]

[147] Emails that circulated between Inco and Zinifex on 25 August 2005 advised that MSQ had all that was needed to issue the new Class 2B registration. One noted that, once the Class 2B registration was issued, "we are free to remove" the cyclone mooring.[127] These records serve to confirm that the Class 2B registration upgrade was not intended by ISM and Zinifex to provide an option in addition to going to the cyclone mooring buoy at Sweers Island. It was a precursor to its removal.

[148] On 8 September 2005 Mr Bundschuh issued a Certificate of Registration for Class 2B. The Class 2B registration was as follows:

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124 Statement of Mr Bundschuh - 3 August 2007; Exhibit 94; para 69.
125 Exhibit 49, CB87.
126 Statement of Mr Bundschuh - 3 August 2007; Exhibit 94; para 65.
127 Exhibit 49, CB108.

> "To operate within the Gulf of Carpentaria only and restricted to voyages undertaken to avoid cyclonic conditions. To operate in accordance with the limits of class set by Lloyds' Register."[128]

[149] The limits of class set by Lloyd's Register remained for operation not exceeding 21 nautical miles from the coast, notwithstanding the strength assessments undertaken by Lloyd's Register for the vessel in cyclonic conditions. If the condition on registration was to be subject to a 21 nautical mile limit, there would have been no point in granting the Class 2B registration. The intent of the 8 September 2005 registration was to permit the ship to undertake voyages in the open waters of the Gulf to avoid cyclones and, if required, to voyage well in excess of 50 nautical miles offshore in order to do so.

[150] On 20 September 2005 Captain Daniel sent an email which updated Captain Boath on the current status of the *Wunma's* use of the cyclone mooring buoy. This included an account of the global and local strength assessments completed by Lloyd's Register and that the ship's registration had been reassigned to reflect Class 2B requirements such that the ship was registered as Class 2C for normal operations and 2B "for the purpose of undertaking voyages in the Gulf to avoid cyclonic conditions". The email went on to refer to the fact that Mr Smith had completed a draft of new procedures that would be incorporated in the vessel's SQS.[129] The email noted that the EPA had been consulted and "are happy with Zinifex to remove the mooring buoy and attachments".

[151] Captain Boath responded by email and asked for copies of the cyclone procedures. These were supplied under cover of an email dated 22 September 2005. Relevantly, that email advised:

> "Over the upcoming cyclone season Inco will manage any approaching cyclone as per the previous two seasons. Using current procedures the Wunma <u>will cease all cargo operations well in advance of any approaching low pressure system</u> and be on standby to exit the Port if required."[130] (Emphasis added)

[152] The grant in September 2005 of registration for Class 2B to operate for the purpose of avoiding a cyclone was a critical matter which, so far as Zinifex and Inco were concerned, enabled them to remove the option of going to the cyclone mooring buoy

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128 Exhibit 49, CB109.
129 Exhibit 49, CB110.
130 Exhibit 49, CB112.

at Sweers Island as an option in its procedures. Further, indications from Zinifex and Inco that the cyclone mooring buoy at Sweers Island would no longer be used effectively relieved the EPA of having to determine the long-standing request concerning an environmental investigation that had led to the appointment of Dale Cole & Associates to undertake a Maritime Risk Assessment.

[153] On 28 November 2005 Dale Cole & Associates Pty Ltd provided a short final report which noted that MSQ had issued a Class 2B registration that enabled voyages to be undertaken to avoid cyclone conditions. Dale Cole & Associates Pty Ltd expressed the opinion that the adoption of the new operational procedures was in keeping with international best practice for the management of risk to vessels from cyclonic conditions and that the cyclone mooring buoy could be removed without adversely impinging on the safe navigation of the *Wunma* during cyclonic occurrences. It concluded that the adopted operational procedures removed the requirement for the vessel to ever use the cyclone mooring buoy in Investigator Road and consequently eliminated any risk that may have been associated with its use including the transit of the *Wunma* to or from the cyclone mooring buoy.

[154] In his evidence to the Inquiry, Captain Cole stated that he did not consider matters such as the capacity of the ship to effectively discharge water to sea during cyclones, its seakeeping properties or power because he assumed that they were things that MSQ would look at in granting a Class 2B Certificate.[131]

[155] On 15 December 2005 the EPA advised the representatives of the Kaiadilt People and the CLCAC of "significant changes to the operations of the *Wunma* namely the grant of Class 2B registration to enable the *Wunma* to proceed to sea to avoid cyclones and revised written procedures that did not require or involve the use of the cyclone mooring buoy in Investigator Road". In summary, it advised that "the removal of the need to use the buoy has eliminated any risk that may have arisen from its use. This outcome would appear to be consistent with the interests of your client and would appear to have effectively provided a conclusion to the matter".[132] The EPA correctly perceived that these matters relieved it from having to make a decision concerning the risks associated with use of the cyclone mooring buoy in

131 Captain Cole; T.699.
132 Exhibit 49, CB117.

Investigator Road. [133]

[156] The grant by MSQ of a Class 2B registration may have facilitated the "decommissioning" of the cyclone mooring buoy at Sweers Island so far as Zinifex, Inco and the EPA were concerned. However, the matter remained of concern to Captain Boath and to Captain Diack.

[157] Zinifex did not renew the cyclone mooring authority that expired on 16 December 2005. A letter from Captain Boath to it on 13 January 2006[134] noted the expiry of the authority on 16 December 2005 and requested Zinifex's prompt attention to the matter.[135]

[158] In February 2006 MSQ left messages with Inco's Operations Manager at Karumba about the expiry of the mooring buoy. On 7 February 2006 the matter was brought to the attention of Captain Boath who in turn emailed Captain Diack. Captain Boath remarked in an email to Captain Diack on 7 February 2006 that it would be "nigh impossible for them to be granted a renewal, although it was obviously their intention to allow it to lapse". Captain Boath suggested that a letter be written noting the following points:

- The Port of Karumba will be closed to the *Wunma* in the event of a cyclone.
- Inco as operators are responsible for the safety of the vessel.
- Their cyclone plan should take these factors into account.[136]

[159] On 7 February 2006 Captain Diack wrote to Captain Boath to advise that, in light of earlier discussions with Captain Watkinson on the issue, he wanted to get Captain Watkinson's opinion on the development before responding. Captain Diack agreed with Captain Boath that there was no prospect of renewing the cyclone mooring authority and continued "that it leaves us with a major safety issue in respect of the ship's crew".[137]

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133 On 15 February 2006 the EPA was advised by the legal representatives of the Kaiadilt People and CLCAC that their clients were supportive of the revised operational procedures but remained concerned that the buoy mooring was located in the immediate vicinity of sites of significance. They sought advice concerning procedures to decommission the buoy mooring and remove it, whereupon they would consider the matter satisfactorily concluded; Exhibit 49, CB122. It is not apparent that any such advice was subsequently given..

134 Exhibit 49, CB118.

135 Zinifex was later to state in a letter dated 20 October 2006 to have only recently become aware that the cyclone mooring authority had expired; Exhibit 49, CB134.

136 Exhibit 49, CB119.

137 Exhibit 49, CB119.

[160] The status of the cyclone mooring buoy was then the subject of a meeting between Captain Boath and Captain Diack on 8 March 2006. A note of that meeting records discussions about the history of the matter, the "dangerous" situation that existed without a cyclone mooring and the belief that MSQ had "no power to enforce ships to use buoy mooring".[138] On the same day, Captain Boath made his own file note about the matter. Relevantly, Captain Boath recorded the fact that the original application for a cyclone mooring buoy authority was advanced on the basis that proceeding to sea may put the ship and crew in danger such that the safest option was to locate a cyclone mooring between Bentinck and Sweers Island. He also noted the subsequent course of events including evidence given in the Federal Court proceedings that it was unsafe for the vessel to proceed to sea in a cyclone and that the only safe option was for the ship to use the buoy mooring.

[161] On 14 March 2006, Captain Boath forwarded a copy of his file note because of his concern that MSQ was exposed to liability because of its dealings in relation to the buoy mooring. Captain Boath's email of 14 March 2006 succinctly identifies the difficult situation in which MSQ had placed itself:

> "The crux is, I believe, with the GM; DGM and myself all having put our hands to our hearts in High Court proceedings declaring the mooring was necessary to provide safety of the vessel and crew in the event of a cyclone, and in fact this safety would be compromised if the ship was sent to sea, how do we now reconcile the fact that they have allowed the authority to expire, and our cyclone contingency plan would direct them to proceed to sea?"[139]

[162] In due course, Captain Boath was provided with advice concerning the legal position of MSQ. In summary, the legal advice was that MSQ had the option of either having the buoy mooring removed or leaving it in place for the *Wunma* to use during a cyclone and that MSQ had to decide the best option to achieve its primary objective of ensuring maritime safety.

[163] It is unnecessary to dwell upon the contents of the legal advice or its correctness. The matter highlighted in Captain Boath's email of 14 March 2006 and earlier opposition to the grant of a Class 2B registration raised more than a problem about potential legal liability. It identified a matter central to the safe operation of the ship and highlighted the apparent inconsistency between MSQ's position before the

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138 Exhibit 49, CB124.

139 Exhibit 49, CB126.

Federal Court to the effect that a cyclone mooring was necessary to provide safety for the ship and her crew in the event of a cyclone and the maintenance of a Cyclone Contingency Plan that directed the ship to proceed to sea in the event of a cyclone. MSQ was aware that proposed procedures removed the use of the cyclone mooring buoy at Sweers Island as an option under the ship's operating procedures, and that the new Class 2B registration facilitated the ship travelling into open waters during cyclonic conditions.

[164] Rather than insist upon the construction of a new cyclone mooring in the Norman River as Captain Boath had recommended in July 2004 and the renewal of the cyclone mooring at Sweers Island pending such a development, MSQ acquiesced in the decommissioning of the cyclone mooring buoy at Sweers Island.

[165] On 12 October 2006 a meeting occurred in the office of the EPA in Brisbane between representatives of MSQ, Zinifex, the EPA and the Department of Primary Industries and Fisheries the purpose of which was to seek advice from relevant government agencies on their requirements for the removal of the buoy.[140] Under the *Transport Operations (Marine Safety) Regulation* 2004 there was an obligation to remove the buoy and this was noted at the meeting.

[166] Subsequently on 20 October 2006, the General Manager of Zinifex, Mr Greg McMillan, wrote to MSQ in connection with the meeting and stated, surprisingly, that Zinifex "only became aware recently" that the buoy mooring authority had expired.[141] The letter noted that the cyclone mooring had in fact never been used, that Zinifex had no intention of using it at any time in the future and that it would comply with any directions of the Regional Harbour Master in relation to its removal The letter confirms:

> "The company has been in discussion with local communities in the area for several years about the removal of the buoy mooring, owing to certain cultural sensitivities in the area and an unfortunate history of Federal Court litigation commenced by registered native title claimants against the former holders of the buoy mooring authority and the State Government over the initial granting of the authority and installation of the buoy."

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140 Exhibit 49, CB132.

141 Exhibit 49, CB134.

It advised that discussions were continuing and that the company was reluctant to commence removal of the buoy mooring until such time as agreement was reached with the communities. A copy of the letter sent to the EPA, DPI and the Harbour Master at Cairns.[142]

[167] On 1 November 2006, MSQ responded, noting that it was aware of the history of issues associated with the mooring and understood that Zinifex was in discussion with local communities in respect of the removal of the buoy mooring. MSQ stated that it was anxious for the obligations relating to removal of the buoy be met. It noted that it was almost six years since the original buoy mooring authority had been granted and that, during this time, the mooring apparatus would have been subjected to significant wear and tear, and that without regular and adequate maintenance the mooring buoy and apparatus could be a danger to navigation. The urgent advice of Zinifex was sought in respect to the present condition of the mooring apparatus as well as specific details of any maintenance works that had been undertaken since its initial placement.

[168] This letter does not appear to have been the subject of a response prior to the incident.

[169] In any event, it is unlikely that the mooring buoy was operational beyond 2005. Little, if anything, had been done to maintain it and an inspection of the mooring buoy in May 2007 showed that it was not operational.

4.13 SUMMARY

[170] When the ship was designed in the late 1990's, classed by Lloyd's Register in 1999 and registered in Queensland in 1999, a cyclone mooring was intended as an essential component of the ship's operation. The option of sending the *Wunma* to sea in cyclonic conditions was said in sworn evidence to be not viable. The safety of the ship and her crew was said to require a cyclone mooring.

[171] By the time of the incident in February 2007 the ship had no access to an operational cyclone mooring. Although Lloyd's Register's notations still limited her operations to "Coastal Services" (meaning not in excess of 21 nautical miles offshore), MSQ had granted a Certificate of Registration for Class 2B to undertake voyages in the open waters of the Gulf to avoid cyclones. The ship's operator and a consultant to

142 Exhibit 49, CB134.

the ship's operator and owners had produced written cyclone procedures that enabled her to head for the open sea and remain there in the event of a cyclone.

[172] The events outlined in this Chapter that led to the decommissioning of the cyclone mooring at Sweers Island and no new cyclone mooring taking its place, effected a fundamental change in the ship's authorised operations in the event of a cyclone. The option of heading into open waters, which once had been rejected as not viable and unsafe, had been authorised in terms of the ship's registration and incorporated into her operating procedures.

4.14 GALLERY

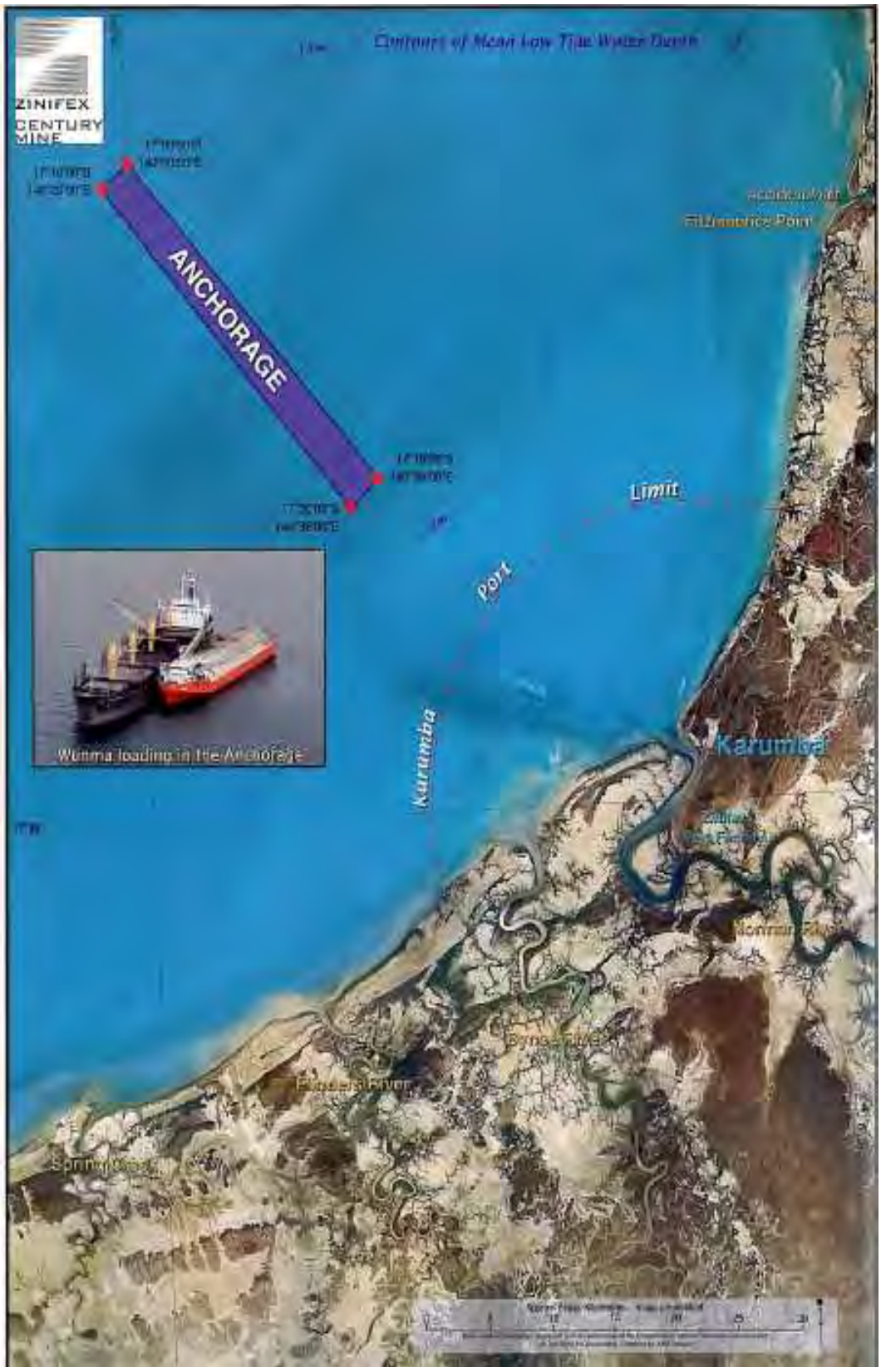

Figure 1 - Satellite Photograph of the Port of Karumba and the Roadstead (Anchorage)

Figure 2 - The Wharf and Storage Shed

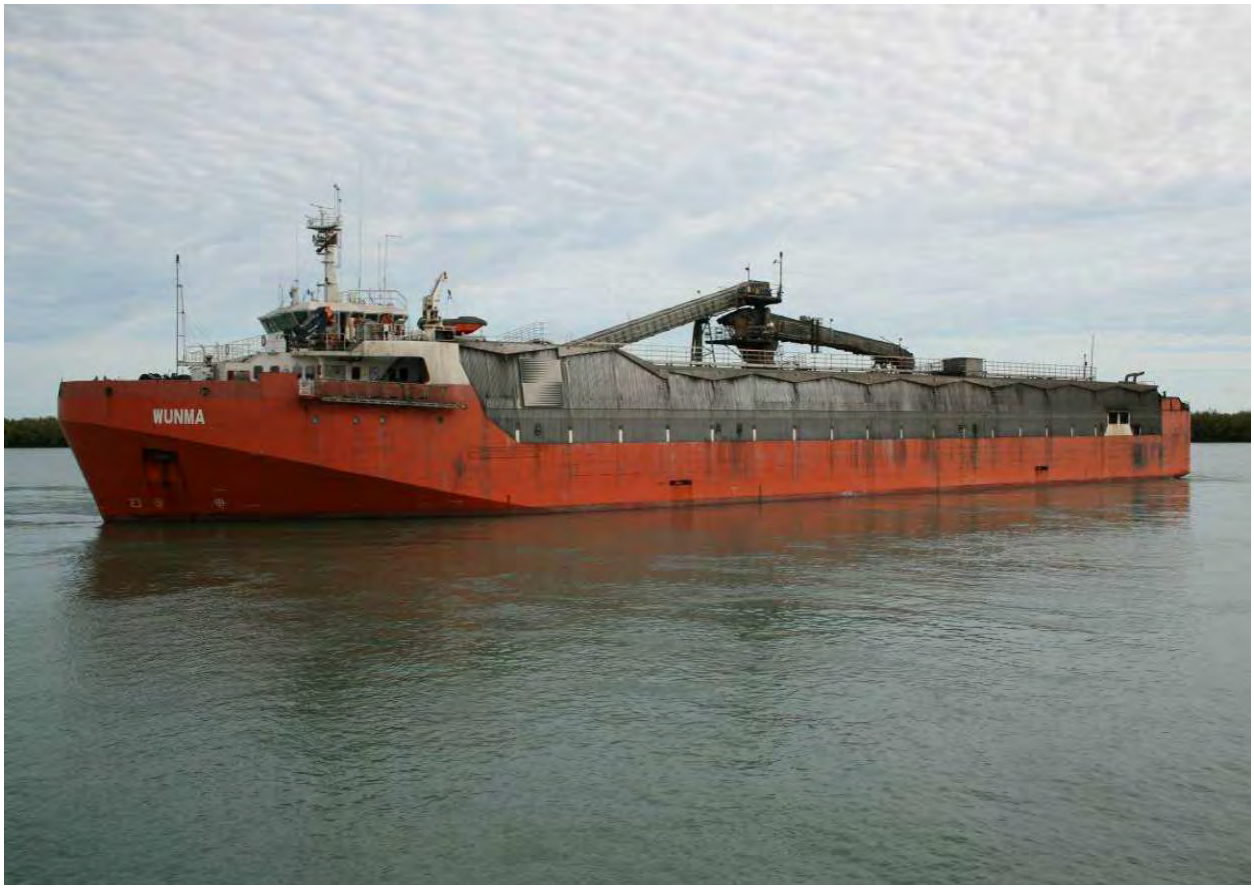

Figure 3 - The *Wunma*

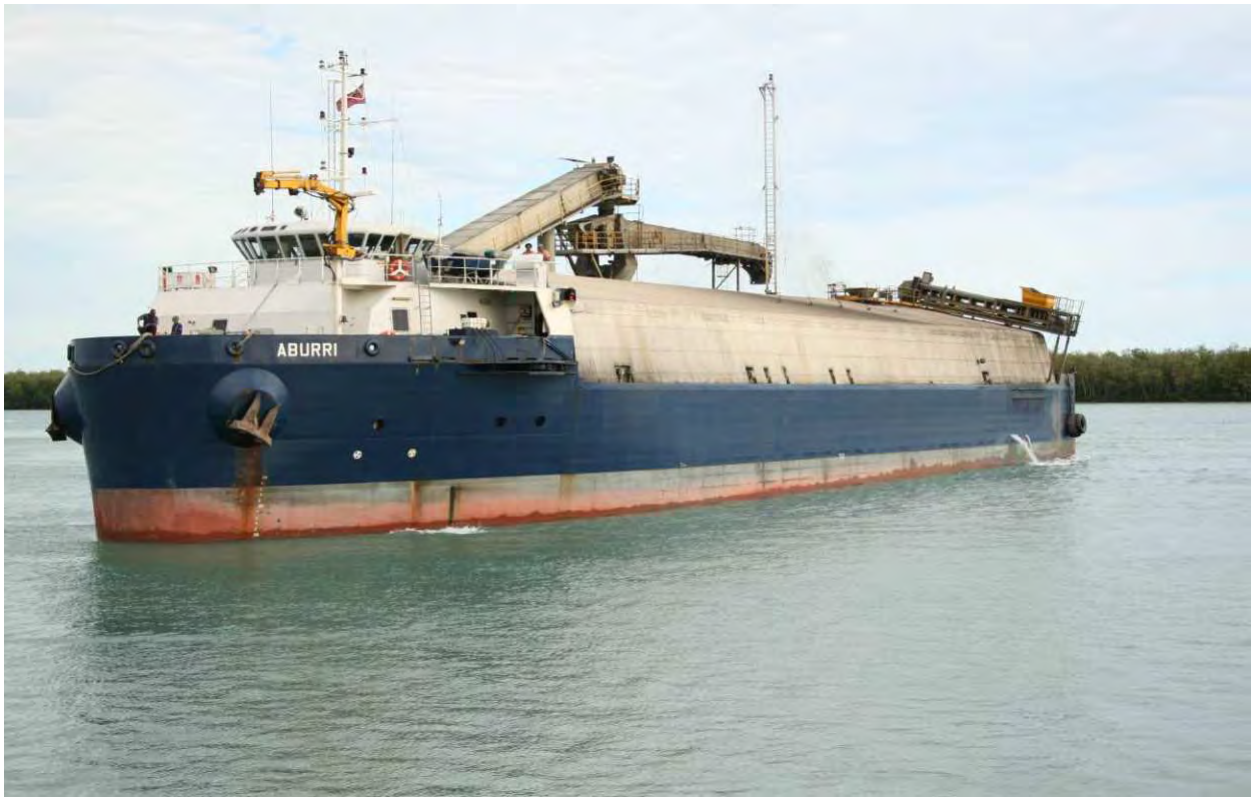

Figure 4 - The *Aburri*

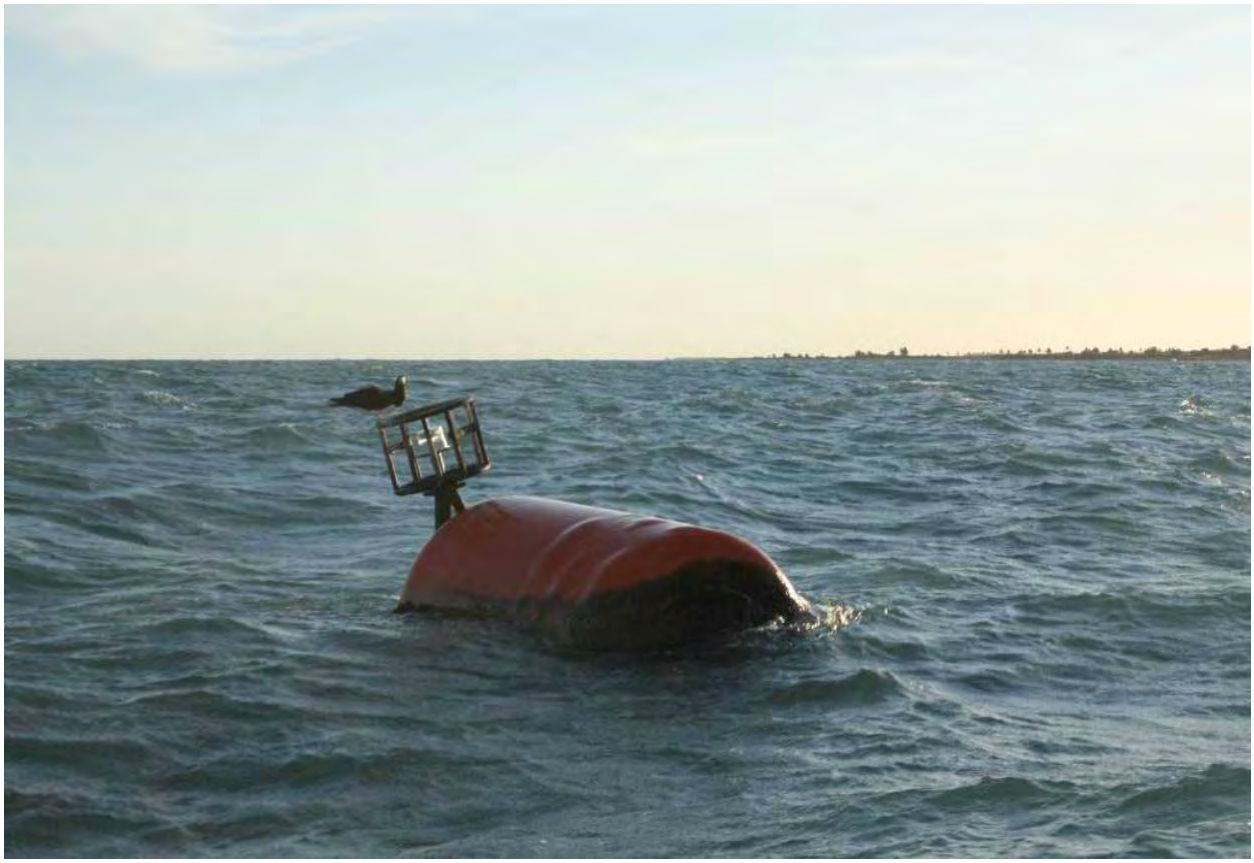

Figure 5 - The Sweers Island Cyclone Mooring

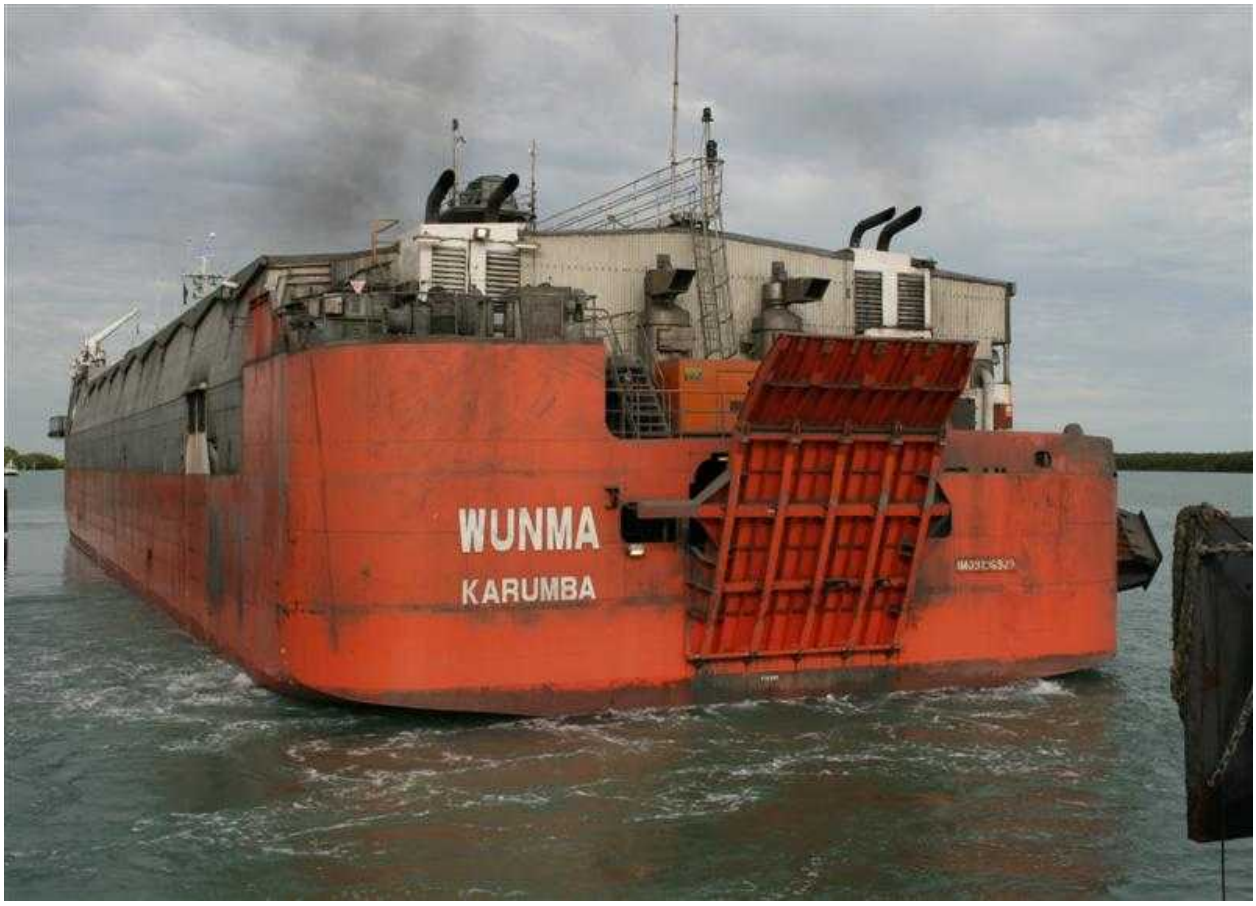

Figure 6 - The Stern

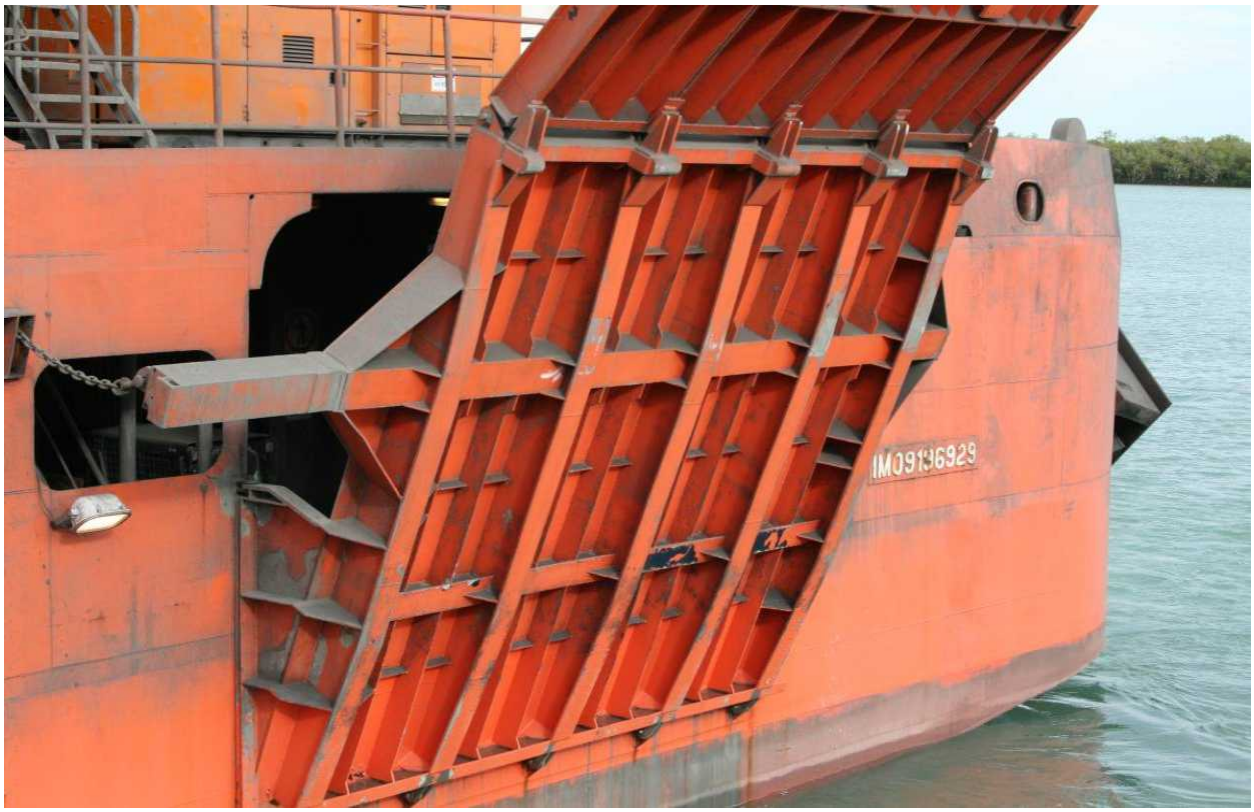

Figure 7 - The Stern Ramp Fully Closed