



Australian Government

Offshore Petroleum Safety Regulation

Marine Issues

by

Kym Bills and David Agostini

June 2009



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Preface

On 9 January 2009, the Commonwealth Minister for Resources and Energy, the Hon Martin Ferguson AM MP and the Western Australian Minister for Mines and Petroleum, the Hon Norman Moore MLC, formally invited us to form an expert panel to undertake an inquiry into the occupational health and safety and integrity regulation for upstream petroleum operations with reference to the gas pipeline rupture and explosion on 3 June 2008 and, as an addendum, to investigate interfaces between regulatory agencies for marine upstream petroleum operations.

Legal action in the Federal Court has altered the course of the inquiry and associated investigations on several occasions. As a result, new terms of reference were approved by Minister Ferguson requesting that we report on occupational health and safety and integrity regulation of offshore petroleum operations focussing on the role of the National Offshore Petroleum Safety Authority (NOPSA), and on the effectiveness of the interface between NOPSA and the Australian Maritime Safety Authority (AMSA). This report addresses the NOPSA/AMSA regulatory interfaces. Regulatory effectiveness is discussed in a separate report *Offshore Petroleum Safety Regulation: Better practice and the effectiveness of the National Offshore Petroleum Safety Authority*.

Supported by a small team of experts, we have reviewed documentation from the Commonwealth and Western Australian regulators and have met with a wide range of regulators and oil and gas companies in Australia and abroad. In particular, we have drawn on the assistance of experts in the marine and oil and gas industries, Mr Kit Filor, Mr David Lesslie and Mr Steve Curry. The report and its recommendations is based on the information generously shared with us by key agencies that we acknowledge with gratitude, with particular thanks to AMSA and NOPSA.

It has been a hectic but unforgettable five months during which time we have been ably supported by our Canberra and Perth Secretariat. We would particularly like to thank Juliet Lautenbach and Joanna Bunting for their late nights, early mornings, frenetic travel and uncompromising commitment to this report; and David Hope who desktop published several versions of several reports under extraordinary time pressure.

Our earnest hope for this report, as it is for our separate study of better practice regulation in general, is that our recommendations improve safety and regulatory effectiveness in Australia's offshore oil and gas industry and marine operations well into the future.

KYM BILLS
Panel Member

DAVID AGOSTINI
Panel Member

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Acronyms and abbreviations

AIMPE	Australian Institute of Marine and Power Engineers
ALARP	As low as reasonably practicable
AMSA	Australian Maritime Safety Authority
APPEA	Australian Petroleum Production and Exploration Association
ATSB	Australian Transport Safety Bureau
CALM	Catenary anchor leg mooring
DEEWR	Department of Education, Employment and Workplace Relations
DITR	Department of Industry, Tourism and Resources
DITRDLG	Department of Infrastructure, Transport, Regional Development and Local Government
FPSO	Floating production, storage, and offloading tankers
FSO	Floating storage and offloading tanker
IADC	International Association of Drilling Contractors
IMO	International Maritime Organisation
ISM	International Safety Management
MOSOF	Commonwealth <i>Petroleum (Submerged Lands) (Management of Safety on Offshore Facilities) Regulations 1996</i>
MODU	Mobile Offshore Drilling Unit
MOU	Memorandum of Understanding
MUA	Maritime Union of Australia
Nav Act	<i>Navigation Act 1912</i>
NOPSA	National Offshore Petroleum Safety Authority
OHS	Occupational Health and Safety
OHSMI	<i>Occupational Health and Safety (Maritime Industry) Act 1993</i>
OPGGSA	<i>Offshore Petroleum and Greenhouse Gas Storage Act 2006</i>
RET	Department of Resources, Energy and Tourism (Commonwealth)
SOLAS	International Convention for the Safety of Life at Sea

Terms of reference

Independent inquiries into occupational health and safety and integrity regulation of offshore petroleum operations

Background

On 9 January 2009 the Commonwealth and Western Australian Governments through the Minister for Resources and Energy the Hon Martin Ferguson AM MP and the Minister for Mines and Petroleum the Hon Norman Moore MLC announced a joint independent Inquiry into the effectiveness of regulation for upstream petroleum operations. The terms of reference included a focus on the incident at Apache Energy Ltd's facilities on Varanus Island.

A two person expert Panel comprising Mr Kym Bills, Executive Director of the Australian Transport Safety Bureau nominated by Minister Ferguson and Mr David Agostini a former senior executive with Woodside nominated by Minister Moore was appointed to lead the Inquiry. The Commonwealth initially provided \$1 million to cover the costs of the Inquiry.

Apache initiated action in the Federal Court to challenge the Panel's use of documents provided by the Western Australian Department that had been compulsorily obtained under section 63 of the *Petroleum Pipelines Act 1969*. On 22 May 2009 the Federal Court held that provisions of the documents by officers of the State of Western Australia, to the Panel for the purposes of the Inquiry, was not for the purposes of the Act and regulations.

In light of the Federal Court decision, Ministers have agreed that the panel will prepare a report for the Minister for Resources and Energy covering better practice regulation and the role of the National Offshore Petroleum Safety Authority (NOPSA) with associated recommendations. A separate report, with recommendations, will also be provided to the Minister for Resources and Energy on improving the interface between NOPSA and the Australian Maritime Safety Authority in light of two incidents during Cyclone Billy. Both reports will be finalised and provided by 30 June 2009.

In addition, on 8 May, the Minister for Mines and Petroleum announced that Mr Bills and Mr Agostini had been appointed as inspectors under the *Petroleum Pipelines Act 1969* and would coordinate finalisation of the technical investigation into the Varanus Island explosions on 3 June 2008. This separate independent Western Australian Inquiry will also address the role of Apache (as

majority owner and operator) and any regulatory issues involving the Western Australian regulators in the lead up to the incident with associated recommendations. A draft report is to be completed by 10 June with a final report to be provided to the Minister for Mines and Petroleum by 30 June 2009.

Offshore regulatory effectiveness involving NOPSA and AMSA

In December 2008 two separate incidents occurred during Cyclone Billy involving the *Karratha Spirit* and the *Castoro Otto*. The *Karratha Spirit* is an Australian registered floating storage and offloading tanker (FSO) and the incident involved a fatality which is being independently investigated by the Australian Transport Safety Bureau (ATSB) in addition to an investigation by the National Offshore Petroleum Safety Authority (NOPSA). The *Castoro Otto* is a Bahamas registered self propelled pipe layer crane ship and had a total of 262 mostly Australian construction workers and marine crew on board when it was forced to sea during the cyclone. The incident was investigated by NOPSA.

Terms of reference for the two member expert panel comprising Mr Kym Bills and Mr David Agostini are:

- *In light of the Karratha Spirit and Castoro Otto incidents, consider any issues in relation to occupational health and safety regulation involving the National Offshore Petroleum Safety Authority (NOPSA) and the Australian Maritime Safety Authority (AMSA) and*
- *Make any necessary or desirable recommendations to improve future offshore safety and regulatory effectiveness.*

The panel's report is to be delivered to the Minister for Resources and Energy by 30 June 2009.

Executive summary

In December 2008, during Tropical Cyclone Billy, two incidents occurred involving ship-like floating facilities engaged in the exploitation of petroleum resources off the northwest coast of Western Australia. A fatality occurred on board the Australian registered floating storage and off-loading tanker (FSO) *Karratha Spirit* while the crew were unmooring the vessel in preparation to depart the Legendre oil field ahead of the approaching cyclone, on Christmas Eve. Some days earlier, the Bahamas registered pipe-laying/construction vessel *Castoro Otto* broke a number of anchor wires and was compelled to cut others when Tropical Cyclone Billy passed close by its position in the Joseph Bonaparte Gulf

As an addendum to a wider inquiry into offshore petroleum safety regulation, we were directed to consider the effectiveness of the regulatory regime for occupational health and safety (OHS) and integrity that applied to the *Karratha Spirit* and *Castoro Otto* and the respective roles of the National Offshore Petroleum Safety Authority (NOPSA) and the Australian Maritime Safety Authority (AMSA).

While many previous inquiries have commented on the interrelationship between maritime legislation and offshore petroleum legislation and possible unintended consequences from the disapplication of the *Navigation Act 1912*, none to date have identified these consequences and offered a solution to them.

In considering the issues surrounding the offshore petroleum safety regime, we sought submissions from the parties with a marine interest in the two events, from the regulators (NOPSA and AMSA), from the unions whose members were or may have been put at risk by the circumstances surrounding the events, and from other stakeholders. We also initiated meetings with the various parties.

We examined company and NOPSA reports into the fatality on board *Karratha Spirit* and the events that occurred on board *Castoro Otto*. We note that the independent Australian Transport Safety Bureau (ATSB) report into the *Karratha Spirit* incident has not yet been released.

We have confirmed that there are potential gaps in both OHS and regulatory coverage and less than optimal interface issues. We recommend the need for legislative amendment and for an increased cooperative role between AMSA and NOPSA in the offshore marine context. However, we do not find that regulatory interface issues were central to the two incidents we reviewed. We also recommend consideration of a rewrite of the *Navigation Act 1912*.

1: The *Castoro Otto* and *Karratha Spirit* incidents

Castoro Otto

- 1.1 *Castoro Otto* is a Bahamas registered self propelled pipe layer crane ship (Figure 1). It was built in 1976 and has an overall length of 191.20 m, a breadth of 35.06 m and a depth of 15.02 m.
- 1.2 When laying pipe, the ship is positioned and then moved using up to 12 of its anchors each of which is connected via a cable to a deck mounted winch. The anchors are deployed and retrieved by anchor handling tugs that standby and assist the ship during pipe laying operations.
- 1.3 During December 2008, *Castoro Otto* was engaged in laying a gas pipeline from onshore at Wadeye on the eastern side of the Joseph Bonaparte Gulf, Northern Territory, to the 'Blacktip' wellhead located about 60 nautical miles offshore.
- 1.4 At the time of the incident there were a total of 262 construction workers and marine crew on board the ship. The master, senior construction staff and senior marine personnel were Italian nationals while the bulk of the construction workforce and the remaining marine crew were Australian nationals.

Figure 1: *Castoro Otto*



- 1.5 Throughout the day on 15 December 2008, *Castoro Otto*'s master was monitoring the formation of a tropical low in the Timor Sea about 250 nautical miles to the north of the ship's position. The tropical low started to move in a southerly direction and, at 2100¹, the master initiated emergency response preparations.
- 1.6 By 0900 on 17 December, the pipeline had been placed on the seabed and the ship was ready to weigh anchors and proceed to sea. During the day there was a partial change-out of crew and a new master joined the ship and assumed command. He considered the weather forecast information provided to him, which indicated that the tropical low would move to the southwest away from *Castoro Otto*, and he decided to remain moored.
- 1.7 At about 1300 on 18 December, the master, under pressure from the workforce, instructed the crew to start retrieving the anchors in preparation for proceeding to sea. However, the crew was only able to successfully retrieve one anchor. While they were retrieving a second anchor, its cable parted.
- 1.8 The master was then informed that the anchor handling tugs could no longer continue to assist with the retrieval of anchors because of the deteriorating weather conditions. As a result, the ship remained moored with five anchors deployed.
- 1.9 During the evening, the tropical low developed into a category one cyclone (wind gusts up to 50 knots), designated Cyclone Billy, which altered course towards *Castoro Otto*.
- 1.10 At 0023 on 19 December, the first of the remaining anchor cables parted followed shortly afterwards by another. A third anchor cable was then cut to allow the ship's bow to swing towards the weather. At 1430, one of the two remaining anchor cables parted. The main engine was then run to assist in holding the ship in position.
- 1.11 At 1722, the last anchor cable parted and *Castoro Otto* made its way to sea under its own power. On the morning of 20 December, one of the anchor handling tugs passed a tow line to *Castoro Otto* and assisted the ship on its voyage to Darwin.
- 1.12 There were no injuries recorded on board *Castoro Otto* as a result of this incident.

1 All times referred to in this report are local time, Coordinated Universal Time (UTC) + 9 hours.

Karratha Spirit

1.13 *Karratha Spirit* is an Australian registered floating storage and offloading tanker (FSO). The ship was built in 1988 as a single hulled tanker and in 2001 it was converted to a FSO and renamed *Karratha Spirit* (Figure 1).

1.14 The ship has an overall length of 255.00 m, a breadth of 42.67 m, a depth of 21.52 m and a total oil storage capacity of 781 333 barrels (124 222 m³). *Karratha Spirit* usually remains moored to a catenary anchor leg mooring (CALM) buoy by a pair of hawsers, providing storage and offloading facilities for *Ocean Legend*, an oil production platform located at the Legendre Oil Field, about 60 nautical miles north of Dampier, off the coast of Western Australia.

1.15 At the time of the incident, *Karratha Spirit* crew consisted of 18 Australian nationals.

Figure 2: *Karratha Spirit*



1.16 Cyclone Billy had reached category two intensity (wind gusts up to 70 knots) before it crossed the coast early on 20 December. It then weakened to a tropical low while moving in a west-south-west direction across the land. On 22 December, after moving off the Kimberley coast, it redeveloped into a cyclone. It then moved southwest, along the coast and intensified on 23 and 24 December, reaching category four intensity (wind gusts up to 125 knots) late on 24 December.

1.17 *Karratha Spirit*'s master was monitoring Cyclone Billy's path and, on 22 December, he instigated preparations in anticipation of departing the CALM buoy.

- 1.18 At 0520 on 24 December, oil delivery from *Ocean Legend* was stopped and, at 1800, the master made the decision to disconnect the ship from the CALM buoy. The crew then began to disconnect the oil import hose. By about 1930, the import hose was disconnected from the manifold and was suspended by its hoisting wire.
- 1.19 At about 1945, the main engine was run at dead slow astern for about one minute to move the ship astern and thus pull the import hose from under the mooring hawsers. The hawsers, each connected to a winch drum by a pickup line, were also slackened off at this time.
- 1.20 However, the astern movement of the ship increased the load on the pickup lines and the import hose hoisting wire. At 1954, the import hose hoisting wire suddenly parted and the import hose dropped into the water.
- 1.21 The crew continued to pay out the two pickup lines. When the starboard side pickup line had come to its end, one of the crew members climbed under the winch drum and cut the sacrificial lashing, attaching the pickup line to the winch drum, with a knife. The pickup line then fell to the water.
- 1.22 At about 1958, when the port side pickup line had almost come to its end (about three turns remaining on the winch drum) a crew member tightened the winch drum brake so that it would not turn when he stepped between the cheek plates of the drum to cut the sacrificial lashing. He began to cut the lashing but the pickup line was under tension and when the lashing parted, the remaining turns of pickup line rapidly unwound from the drum and struck the crew member, dragging him under the winch.
- 1.23 The ship sailed clear of the CALM buoy, thus avoiding the cyclone. However, the crew member died as a result of the injuries he had received.

Incident investigations

- 1.24 The operators of the two vessels have carried out investigations into the incidents and both incidents have been the subject of NOPSA investigations.
- 1.25 Since AMSA considered that both vessels were facilities at the time that the incidents occurred, and therefore the Nav Act and *Occupational Health and Safety (Maritime Industry) Act 1993* (OHSMI Act) were disapplied and AMSA had no jurisdiction, the authority has not carried out an investigation into either occurrence. However, an AMSA surveyor did assist NOPSA inspectors while they were investigating the incident on board *Castoro Otto*.

- 1.26 The Australian Transport Safety Bureau (ATSB) is currently in the process of completing an independent safety investigation into the fatality on board *Karratha Spirit*. It is likely that the ATSB investigation will consider the effectiveness of the regulatory regime as it is the ATSB's remit to determine and communicate the safety factors² relating to an incident under investigation. The ATSB investigation report will be completed in the coming months, at which time it will be publicly released.
- 1.27 Overall, without wishing to prejudice the findings of these investigations or of the Western Australian Coroner, we find that the regulatory interface issues discussed in this report were not central to the *Karratha Spirit* or the *Castoro Otto* incidents.

2 A safety factor is an event or condition that increases safety risk. In other words, it is something that, if it occurred in the future, would increase the likelihood of an occurrence, and/or the severity of the adverse consequences associated with an occurrence. Safety factors include the occurrence events, individual actions, local conditions, risk controls and organisational influences.

2: The regulatory effectiveness of AMSA and NOPSA

- 2.1 As Professor James Reason remarks:
*The regulator's lot – like a policeman's – is not a happy one. Not only are they rarely loved by those they regulate, they are now ever more likely to be blamed for organizational accidents.*³
- 2.2 The 2007–08 NOPSA Annual Report⁴ notes that there are 101 facilities subject to NOPSA levies. Forty one of these are classed as floating facilities. Floating facilities take a number of forms and include FSOs, floating production, storage, and offloading tankers (FPSOs), construction vessels, pipe-laying vessels, drill vessels and other vessels engaged in the exploitation of offshore petroleum and gas reserves.
- 2.3 By the close of 2008, 16 FPSOs were due to be on site and operating in the Australian offshore petroleum industry. Of these, five are registered under the Commonwealth *Shipping Registration Act 1981*.⁵
- 2.4 Ship-like facilities are subject to one of two safety legislative regimes depending on their current mode of operation. The effectiveness of the two regulators, NOPSA and AMSA, and the interface between them is therefore a critical issue in meeting acceptable levels of OHS and facility integrity, regardless of mode of operation.
- 2.5 NOPSA administers the offshore petroleum safety legislation in State and Commonwealth waters with the aim of regulating OHS standards on the principle of reducing risk to 'as low as reasonably practicable' (ALARP) and thereby improving safety outcomes. NOPSA

3 Reason, J. 1997, *Managing Risks of Organizational Accidents*.

4 NOPSA, 2007–2008 *Annual Report*, Table 1.1.

5 AMSA advised the Inquiry that at the end of 2008 the five FPSOs were *Challis Venture*, *Cossack Pioneer*, *Griffin Venture*, *Jabiru Venture* and *Nganhurra* and there was one FSO (*Karratha Spirit*). *Challis Venture* is a permanently moored, non-powered barge-type FPSO without an engine room and not subject to the ISM Code. Two other FPSOs on the Register are undergoing conversion to an FPSO overseas and expected on location in the Australian offshore industry in late 2009 (*Pyrenees Venture*) and late 2010 (*Okha*) with the latter to replace the *Cossack Pioneer*.

has an OHS focus in administering relevant parts of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (OPGGSA). The OPGGSA applies to facilities from the time they arrive at an offshore petroleum site to the time they leave the site. The OPGGSA and the associated *Petroleum (Submerged Lands) (Management of Safety on Offshore Facilities) Regulations 1996* (MOSOF) require facility operators to develop a 'safety case'. The safety case document describes the facility, identifies 'major accident events', their prevention, mitigation and emergency response, and outlines the facility's safety management system.

2.6 AMSA is the Commonwealth agency responsible for ship safety, marine environment protection and marine and aviation search and rescue. The authority also provides an OHS inspectorate role in the maritime industry. In the context of this inquiry, AMSA's regulatory and OHS responsibilities apply to Australian registered ship-like facilities when on a voyage to an offshore petroleum site. In some, but not all, circumstances AMSA has the same responsibilities when such a ship-like facility leaves the site. These issues will be considered later in this report.

2.7 There are two sets of legislation that may be applied to ship-like facilities. When undertaking offshore petroleum operations, the OPGGSA and subordinate legislations apply. When in a 'navigable form', Commonwealth maritime legislation, sometimes referred to as the 'Nav Act regime', applies to Australian registered ships and, to a degree, foreign registered ships. This 'regime' includes the Nav Act and the OHSMI Act. There is intent that there should be a clear demarcation between the legislation applying at any one time.

2.8 NOPSA inspectors and AMSA surveyors are required to provide effective regulatory oversight of safety in the offshore industry. The authorities also provide personnel that have the experience and ability to provide assurance that standards of OHS and facility integrity are maintained.

2.9 We are satisfied that the two authorities understand their respective roles and accept the principle that one set of legislation should apply at any one time. In discussions with both authorities we gained a firm impression that both saw a clear demarcation in their duties without any overlap. The problem, however, is that with clear alternative mandates, inadequate consideration of the regulatory interfaces may occur and a 'silo' mentality may develop.

2.10 In December 2004, the two authorities entered into a memorandum of understanding (MOU), which outlines their joint objectives, describes the respective responsibilities of the two authorities and outlines, in broad terms, how the two authorities will work together to achieve their objectives. In February 2009, the MOU was updated but its intents remain unchanged.

- 2.11 The objectives in the MOU are⁶;
- the improvement in safety outcomes in the offshore petroleum sector;
 - the delivery of a consistent and comprehensive regulatory regime in offshore waters under which duplication of activities is avoided as far as reasonably possible in respect of facilities and ships over which the parties have regulatory obligations;
 - that industry operations comply with relevant maritime and offshore legislation and regulations; and
 - the effective co-operation of both parties in the administration of their respective commitments set out in the MOU.
- 2.12 Relevantly, the MOU states:
- The parties may jointly conduct audits and inspections of facilities for which both parties have direct regulatory responsibility at different times of the facility operation with the objectives that, as far as reasonably practicable, duplication or overlap of audits and inspections are minimised.*⁷
- 2.13 Since 2005, in addition to other cooperative interactions and activities, AMSA and NOPSA have carried out a total of four joint inspections of floating facilities. Of these, one joint inspection of *Karratha Spirit* was carried out in 2007.
- 2.14 Since AMSA has no legislative power to inspect facilities, the number of joint inspections carried out by the two authorities is probably a fair measure of the extent of AMSA's legislative power to inspect such facilities. During joint inspections, AMSA is on board the facility as an 'invitee' of NOPSA with no independent regulatory status. More regular joint inspections could be one way of integrating the ship safety inspectorate strengths of AMSA and the offshore petroleum OHS inspectorate strengths of NOPSA.
- 2.15 AMSA carries out International Safety Management (ISM) Code audits of Australian registered ships (which are facilities) and their operators. These audits include annual company audits, 5 yearly shipboard renewal audits and intermediate shipboard audits carried out every 2½ years. The authority also carries out port State inspections of non Australian registered ships (which are at times facilities) when they enter a port or at a terminal. AMSA advised that 12 port State control inspections had been conducted of 10 different foreign flag FPSOs and MODUs engaged in the offshore

6 Clause 1.1, Memorandum of understanding between the Australian Maritime Safety Authority and the National Petroleum Safety Authority concerning cooperation on safety arrangements for the offshore petroleum sector, February 2009.

7 Ibid, Clause 7.1.

industry in the three years from 2006 to 2008 and that numerous other port State control inspections of other vessels engaged in the offshore industry were carried out. However, we do not consider that the current arrangements are sufficient to ensure that ship-like facilities are in a position to meet the requirements of the Nav Act and the overarching international conventions that it implements at the point in time that the Act may apply them (when they cease being facilities under the OPGGSA). Hence, we believe that AMSA should have a legally recognised role in the inspection of offshore facilities.

- 2.16 We recognise that the primary skill sets of the NOPSA inspectors (civil, chemical and petroleum engineering, pipelines, pressure vessels, etc) and AMSA surveyors (nautical, engineering and naval architecture) are different.
- 2.17 We also recognise that the operations of the various ship-like facilities will vary widely. However, our yard-sticks are the FPSOs and FSOs. These vessels are facilities for some 95 per cent or more of the time. For reasons discussed later in this chapter, it seems to us that although the OPGGSA must apply to a facility, it is equally important that relevant marine regulatory requirements are applied. A question considered by the Inquiry was whether or not there is a gap in the skills of those that provide assurance of compliance with OHS requirements and whether they can also provide credible and accountable assurance in relation to the residual ship facility integrity issues.
- 2.18 NOPSA and AMSA were of the view that NOPSA's inspectors could adequately monitor compliance of maritime standards, but NOPSA considered its inspectors may not be as quick as a maritime trained surveyor. NOPSA pointed to the fact that its inspectorate included individuals with maritime experience, including one qualified Marine Engineer Grade 1 who had previously been an AMSA surveyor. However, we noted that this resource was not called upon for either the investigation of the *Karratha Spirit* fatality or the *Castoro Otto* incident. Also, given the number of floating facilities, we believe the expertise of a single inspector with maritime experience would be thinly spread.
- 2.19 We were told of specific operational examples where NOPSA requirements were imposed on facilities that potentially compromised or were inconsistent with marine standards. These requirements related to ship scuppers, helicopter deck lighting, tanker safety practice, marine engineering officer electrical qualifications, lifeboats and lifting. The ship owners and managers believed that their application of the ISM Code to their vessels should have been sufficient to provide an acceptable part of the safety management system required by the safety case. However, we

were told that on occasions, NOPSA inspectors have attempted to impose a standard or adjustment to the safety management system that was prescriptive in nature. It was argued that these prescriptive requirements ran contrary to the idea of a safety case regime and could not be demonstrated to reduce risk.

- 2.20 We make no assessment of the validity of the operators' position. However, the issue here goes to the competency of inspectors and surveyors and how maritime expertise could be assimilated in an attempt to avoid too narrow a focus and a silo mentality or culture.
- 2.21 In analysing 84 official United Kingdom reports into a variety of accidents, including rail, mine tip subsidence, fires and marine accidents, Barry Turner identified the following common features which relate to 'silo' culture:
- rigidities in perception and belief;
 - organizational exclusivity: disregard of non-members;
 - information difficulties and 'noise';
 - decoy problems.⁸
- 2.22 The first two of the above dot points do not require comment other than that all organisations and professions are potentially subject to the attitudes and flaws identified by Turner. Information difficulties and the propensity for critical information to be drowned out by competing priorities (noise), or be fragmented or directed to the wrong area, are common themes in accident analysis. The 'decoy problem' occurs when operators concentrate upon one property of an emerging phenomenon and neglect other features of it.⁹
- 2.23 The message we take from such thinking is that risk can be reduced by reducing the opportunity for silos to form and by ensuring the skill base is sufficiently wide to address the sort of issues that Turner identifies.

8 Turner, B, 1978, *Man-made Disasters*.

9 *Ibid*, page 163.

3: Efficient and complementary legislation

- 3.1 There appears to be a general perception amongst the stakeholders in the offshore petroleum industry that ship-like facilities are regulated by NOPSA when they are ‘facilities’ and by AMSA when they are not. This perception is not necessarily well founded.
- 3.2 When a ship-like floating facility arrives at an offshore production site to carry out petroleum exploitation activities, the OPGGSA applies to the facility.¹⁰ The OPGGSA disapplies Commonwealth maritime legislation,¹¹ including the Nav Act and the OHSMI Act. As a result, all floating facilities come under NOPSA’s safety regulatory jurisdiction until they again adopt a ‘navigable form’.¹²
- 3.3 Foreign registered ships are required to maintain their seaworthiness through conformity to the national laws of their flag State. Such requirements are not affected by the disapplication of Australian maritime legislation. Consequently, foreign registered ships must meet the requirements of the national laws of their flag States at all times.
- 3.4 The application of the Nav Act¹³ is voyage based. Generally, the Act applies a suite of internationally recognised safety standards to trading ships on overseas and/or inter-State voyages. In essence, for OHS purposes, the crews of ships to which Part II of the Nav Act applies are also covered by the OHSMI Act.
- 3.5 The Nav Act provides AMSA with powers to board and inspect foreign registered ships in line with Australia’s international treaty commitments. Furthermore, Part II of the Act applies to foreign registered ships operated by an Australian entity and manned mainly

10 Schedule 3 clause 4(7) *Offshore Petroleum and Greenhouse Gas Storage Act 2006*.

11 S.640 & S.641 *Offshore Petroleum and Greenhouse Gas Storage Act 2006*.

12 We note that the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* does not define the meaning of ‘navigable form’.

13 S.2 *Navigation Act 1912*.

by Australians.¹⁴ The Nav Act¹⁵ also applies to an overseas registered offshore vessel operating in Australian waters if its operator seeks a declaration from AMSA.¹⁶ It should be noted that there are currently no ship-like facilities operating in the Australian offshore petroleum industry that are declared under 8A of the Act.

3.6 For Australian registered ships, the disapplication of Commonwealth maritime legislation effectively ‘mothballs’ the maritime safety and pollution prevention requirements of the Nav Act and the international maritime conventions that the Act embraces. As a result, whether or not the provisions of the Act and conventions continue to apply will depend on the content of the facility’s safety management system, which gives effect to its safety case. Currently, NOPSA’s policies, not legislation, seek to ensure that ship-like facilities comply with international conventions for ship safety, crew qualifications and minimum safe crewing levels.

3.7 We are, however, concerned that, when a ship-like facility ceases to be a facility, and once again becomes a ship, it may not necessarily fall within the jurisdiction of the current suite of Commonwealth maritime legislation.

3.8 Since application of the Nav Act to trading vessels is voyage based (i.e. it relies on a vessel undertaking an inter-State or international voyage), it is possible that during the time that the vessel is a facility, the voyage it was on has come to an end. As a result, when the vessel departs the site it may be starting a new voyage. If this is the case, the Nav Act would only apply to a vessel if it were departing on an inter-State or international voyage, or was a declared vessel under 8A of the Act.

3.9 As a result, we see a number of possible legislative scenarios that could apply to any particular Australian or foreign registered vessel and its crew. The following are examples of what may apply to a particular vessel at that point in time when it reverts from a facility and takes on a navigable form:

- a) The Nav Act and the OHSMI Act would apply to an Australian registered ship departing on an inter-State or overseas voyage (e.g. a voyage to dry-dock).
- b) It is possible that the Nav Act and the OHSMI Act would not apply to an Australian registered ship departing from a place in Commonwealth waters on an intra-state voyage (e.g. a voyage to avoid a cyclone). It is also likely that the ship would be outside the jurisdiction of State maritime legislation and that its

14 S.10 *Navigation Act 1912*.

15 S.283 *Navigation Act 1912*.

16 S.8A *Navigation Act 1912*.

crew/workforce would not be covered by any Commonwealth or State OHS legislation.

- c) It is possible that the Nav Act and the OHSMI Act would not apply to a foreign registered and operated vessel departing from a place in Commonwealth waters on an intra-state voyage (e.g. a voyage to avoid a cyclone). It would also be outside the jurisdiction of State maritime legislation. Furthermore, its crew/workforce (likely to be mainly Australian nationals) would not be covered by any Commonwealth or State OHS legislation.
- d) It is possible that the Nav Act would apply to a foreign registered, and operated, vessel departing on an inter-State or international voyage. It is also possible that its crew (likely to be mainly Australian nationals) would not be covered by any Commonwealth or State OHS legislation.¹⁷

3.10 Legal advice provided to us by the Department of Resources, Energy and Tourism (RET)¹⁸ suggests that whether or not a vessel's voyage is considered to have terminated when it arrives at a petroleum site may depend on the operator's intention. For example, if the operator intended to terminate the vessel's voyage on arrival at a site then, to all intents and purposes, the voyage can be considered to have ended. Similarly, if the operator intended to continue the voyage to another place at some time in the future after arriving at the site, the voyage can be considered to be continuing.

3.11 We consider that there are unnecessary complications and omissions due to the current interaction of maritime and offshore legislation as they apply to vessels/facilities. We believe that these problems can only be rectified by ensuring that there is a clear interchange of jurisdiction between Commonwealth maritime and offshore petroleum legislation. This should ensure that the perception 'that ship-like facilities are regulated by NOPSA when they are facilities and by AMSA when they are not', would become a reality.

17 In this context we note the Administrative Appeals Tribunal determination '*Gabriella Jean Pisioneri on behalf of Kimberley Ellen Collins and Emma Maria Collins v Tidewater Port Jackson Marine*' No. A96/6 AAT No. 12487, 1997.

18 The RET advice cites *Tiwi Barge Services Pty Ltd v Stark* (1997) 78 FCR 218.

- R 1 We recommend that the Commonwealth undertake legislative change that will ensure that when any floating facility reverts to a ‘navigable form’, the relevant provisions of the Navigation Act and the OHSMI Act will apply regardless of any voyage criteria. This will help to ensure that all Australian seafarers are covered.

The ship/facility interface

- 3.12 According to Schedule 3 of the OPGGSA, a vessel or structure is considered to be a facility when it is located in Commonwealth waters and is being used, or prepared for use, to carry out activities associated with the exploitation of petroleum reserves.¹⁹
- 3.13 Schedule 3 also states that a vessel or structure commences to be a facility when it arrives at the site where it is to be used and any activities necessary to make it operational are begun. It states that a facility ceases to be a facility when operations cease and the vessel or structure has been returned either to a navigable form or to a form in which it can be towed to another place.
- 3.14 The aim of these definitions is to give a clear understanding of when a vessel ceases to be considered as a vessel and becomes a facility. However, since these definitions are applied to a large range of vessel types (FPSOs, FSOs, construction vessels, pipe-laying vessels and drill vessels etc, any of which may be dynamically positioned) there can be some inconsistencies in their interpretation.
- 3.15 For example, does an FSO become a facility as it approaches a site in preparation for mooring or when mooring is completed and the petroleum import hose is being connected? Similarly, does an FSO cease to be a facility when the oil import hose is disconnected or when the vessel is disconnected from its mooring? Our inquiries indicate that different stakeholders within the industry have come up with different answers to these questions.
- 3.16 In NOPSA’s submission to the inquiry, the Authority suggested:
... incorporating a linear reference to the site, such that a vessel becomes a facility when it is within 500 m of a site and is being used or prepared for use in petroleum activities and continues to be a facility until it is 500 m or more away from the site and has ceased petroleum related activities.
- 3.17 The MUA had similar concerns and in their submission also stated:
Perhaps the most pressing issue that requires immediate resolution is the unsatisfactory situation whereby, usually at the height of an emergency situation, where a disconnect or sail away situation is necessary, a facility ceases being a facility and

19 OPGGSA Schedule 3, Clause 4.

becomes a vessel. Under the current legislative framework and current practice, the command structure requires a switchover at this most inopportune time.

- 3.18 While we see that the issue of command structure and the ‘break point’, or instant, that a facility under NOPSA’s administration transforms to a ship under AMSA’s (or another authority’s jurisdiction) are related, one does not necessarily dictate the other. When and how the command structure changes should be the responsibility of the operator to decide based on safety criteria and the definable temporal or specific point of reference for the change in legislation should be defined in legislation.
- 3.19 We have taken note of the fatality on *Karratha Spirit* and while we have limited information on this sad event we note that the vessel was disconnected from its loading pipeline and was in the process of ‘letting go’, which is a routine marine procedure. Was *Karratha Spirit* a facility or a ship at the time of the accident? Did the fact that the ship had a few turns of a single mooring rope on a winch drum mean that it was secured to the riser and was still a facility? In our minds, regardless of whether it was a ship or a facility at the time, it was undertaking ship-like operations under the directions of the master. Similarly, *Castoro Otto*’s master was clearly in command leading up to and during the Cyclone Billy incident.
- 3.20 On balance we believe that any changes in the command structure on board a ship-like facility should be detailed in the facility’s safety management system and spelt out in its safety case.
- 3.21 The MOSOF regulations²⁰ require the individual in command of a facility at any time to be defined in the facility’s safety case. The regulations also infer that this position may be filled by different individuals at different times. However, the regulations do not require a description of when these changes in command structure will occur and how these changes will be managed.
- 3.22 In the event of a floating facility arriving at, or detaching from, a site, the timing of this change in responsibility is important and should be clearly spelt out in the facility’s safety case.
- 3.23 We have considered the current definitions of the ship/facility interface and see a need for them to be changed. They do not give a clearly defined ‘break point’ for all vessel types and they give rise to a belief that command structure can only change at the point where legislation changes.

20 Regulation 12.

3.24 We have considered NOPSA's proposal and rewording of the current definitions and consider that NOPSA's proposal would provide for the most consistent interpretation from all parties across all types of vessels.

R 2 We recommend that the MOSOF Regulations be amended to ensure that the safety case for a floating facility specifically identifies when command structure changes occur (which may be well before departing the site and associated zone). We also recommend that the OPGGSA be amended so that a vessel becomes a facility when any part of it comes within 500 metres of the site and continues to be a facility until no part of the vessel remains within 500 metres of the site.

Disapplication of the Nav Act

3.25 *The Petroleum (Submerged Lands) Amendment Act 2003* was the legislation that enabled the creation of NOPSA. Introduced into Parliament on 17 September 2003, provision was made under Part 2 of the Act, *Amendments relating to substantive occupational health and safety provisions*, that maritime legislation should not apply to a 'facility', either in Commonwealth or State waters.²¹

3.26 The 2008 independent review of NOPSA noted that there may be unintended consequences as a result of the disapplication of the Nav Act:

*The consequences of the disapplication of the Navigation Act 1912 for FPSO's and other associated offshore facilities are not fully understood by some stakeholders and it appears there are some unintended consequences arising from the disapplication. There are different opinions on what the consequences are and the effects.*²²

3.27 The review did not elaborate on any confusion or unintended consequences, or offer any possible remedy. However, we received a number of submissions that reinforced the view that the disapplication of the Nav Act had led to unintended consequences. One such unintended consequence, as previously discussed, is that Australian workers may not be covered by Australian workplace safety legislation when facilities revert to a navigable form.

3.28 In attempting to discover why the Nav Act was initially disappplied in the 2003 amendments to the PSLA and subsequently in the OGA and OPGGSA, we asked the Government departments and

21 *Petroleum (Submerged Lands) Amendment Act No.118 of 2003, Part 2, S.11A & 11B.*

22 Ognedal, M. Griffiths, D. And Lake, B. 2008.

authorities affected by the disapplication²³ to provide us with file notes relating to any consultation processes to which they may have been a party. However, none of them has been able to support the supposition that there was any consultation among them prior to the disapplication in 2003.

- 3.29 The only evidence we have been able to find that sheds some light on why the disapplication was necessary was found in the drafting notes of the 2003 amendments.
- Excluding the Navigation Act to a facility covered by the PSLA will exclude the general provisions of the Navigation Act concerning health and safety (in a sense most of the Act, but see in particular Division 14 of Part II). It will also exclude the operation of regulations or orders made to give effect to the International Convention on Safety of Life at Sea, 1974 (section 191) or under Part VB of the Navigation Act.'*
- 3.30 We inspected files from RET to find reasons for the disapplication of the Nav Act. While there were references in committee notes to the undesirability of possibly conflicting OHS legislation between the OPGGSA and the OHSMI Act, there does not seem to have been any critical assessment of the disapplication of the Nav Act.
- 3.31 We have made similar inquiries with DEEWR, DITRDLG and AMSA. These inquiries lead us to believe that coordination and communication on this issue, between the then Department of Industry, Tourism and Resources (DITR) and the agencies responsible for Australian maritime legislation was not strong.²⁴
- 3.32 We consider that it is likely that a thorough technical assessment of the disapplication of the Nav Act was not undertaken and that this has led to unintended consequences.
- 3.33 As a result, we have concluded that the disapplication of the Nav Act was seen as a simple way of streamlining OHS regulation for the offshore petroleum industry while ensuring that only one form of safety legislation would apply to a ship-like floating facility at any one time. In apparently focusing on OHS issues for facilities, a gap seems to have been created in terms of ensuring seamless facility integrity and pollution prevention and in terms of international ship safety standards and full OHS coverage for Australian seafarers at all times.

23 AMSA, the Department of Education, Employment and Workplace Relations (DEEWR), the Department of Infrastructure Transport Regional Development and Local Government (DITRDLG) and RET.

24 AMSA advised the inquiry that it attended a number of inter-departmental meetings and discussions with DITR about the proposed establishment of NOPSA, but none of these discussed the proposed disapplication of the maritime legislation.

3.34 The offshore industry strongly supports the concept of a single regulatory regime for floating facilities. APPEA reflect the views of its members when they submitted to the inquiry:

Our strong view is that vessels that are operating as an integral part of upstream petroleum production, for example facilities such as FPSOs, should firmly remain under the jurisdiction of the offshore regulatory regime as administered by NOPSA. This is entirely consistent with achieving a seamless regulatory system for offshore petroleum operations.²⁵

3.35 The Productivity Commission Review of the Regulatory Burden on the Upstream Petroleum Sector of April 2009 reproduced part of the APPEA submission to that review as recommendation 7.3:

The Australian Government should clarify whether any significant regulatory uncertainty results from the decision that the Navigation Act would not apply to Australian registered vessels and floating production, storage and offloading vessels when these are operating under the safety case regime. If so, it should act to remove the uncertainty. Reapplication of the Act would impose an onerous regulatory burden and would be unlikely to result in net community benefits.²⁶

3.36 The Productivity Commission considers the main aspect of the ‘onerous burden’ relates to ‘the highly prescriptive and all encompassing nature of the Navigation Act’. To this we would add the industry position of wanting to eliminate unnecessary legislation and to avoid large maritime crews with little to do on board a facility. From a policy perspective, legislation should ensure that OHS and the integrity (seaworthiness) of the vessel is maintained in a manner that meets Australia’s international commitments, regardless of whether it is a floating facility or a ship. We note that the industry and the Productivity Commission cite the Nav Act as the legislation causing confusion, not the OHSMI Act.

3.37 The concept ‘that by disapplying the Nav Act, only the OPGGSA applies to a ship-like facility’ is something of a legal artifice. A facility reverts to a ‘navigable form’ at the instant that it ceases to be a facility, as it may need to depart from its location in an emergency or for operational reasons. We note that emergencies and cyclones are random events and the need to disconnect to avoid such situations cannot always be predicted. As a result, operators of ship-like facilities must meet the maritime law requirements of their flag State

25 APPEA submission to the Inquiry, p4.

26 The Productivity Commission 2009 Review of the Regulatory Burden on the Upstream Petroleum (Oil & Gas) Sector. p. LIII and p. 182.

- at all times to ensure that their ship-like facilities are prepared to proceed to sea.
- 3.38 We previously noted that operators of foreign registered ship-like facilities meet these commitments as required by the laws of their flag State and operators of Australian registered ship-like facilities currently meet them voluntarily.
- 3.39 Disapplication of the Nav Act has, however, removed the legitimacy of AMSA as a regulator and inspector of ship-like facilities. While AMSA is the Commonwealth agency with the appropriate background and personnel to provide a 'ship safety' inspectorate for ship-like facilities, as it does for ships, the authority does not have the powers to board a ship when it is deemed to be a facility. Since AMSA has no powers to inspect a ship-like facility, the authority is not in a position to assure itself that a facility meets the requirements of the Nav Act.
- 3.40 NOPSA and AMSA have been working together to overcome these problems. However, as noted previously, the two authorities have conducted only four joint inspections of floating facilities since 2005. One of these inspections was carried out on board *Karratha Spirit* in 2007. By comparison, AMSA would normally inspect each Australian registered ship twice a year. It should be noted here that in 2007–08, there were 41 floating facilities operating in the Australian offshore industry, five of which were Australian registered with the remainder foreign flagged and subject to AMSA's port State control inspection program.
- 3.41 We note that under the NOPSA/AMSA MOU there is an intent to jointly inspect ship-like facilities but the MOU does not define a target number of inspections. Such an arrangement is not legally binding and we believe that it would be beneficial to have a legal framework whereby AMSA would become a legitimate inspector of ship-like facilities. Such an arrangement should not only give AMSA the powers to inspect these vessels but an obligation to do so on a risk-based basis.
- 3.42 The goal, therefore, is to find a pragmatic mechanism to apply critical provisions of the Nav Act that reflect international marine and environmental standards to floating facilities without imposing a prescriptive regime or an unrealistic crewing burden on operators. Having found this mechanism, AMSA should have a role in assuring compliance without imposing any undue extra cost on the industry.
- 3.43 This goal could be achieved in one of two ways: by providing AMSA with powers and obligations under the OPGGSA; or by applying the Nav Act to ship-like floating facilities. We believe that the operations of AMSA (ship safety) and NOPSA (OHS) should be complementary and together help to further improve safety in the operation of ship-like facilities in the offshore petroleum industry.

- 3.44 Providing AMSA with powers under the OPGGSA may appear to be the simpler exercise. However, it may also hamstring AMSA, omit important legislative provisions and provide the authority with difficulties through the administration of legislation that is administered by different portfolios.
- 3.45 The combining of OPGGSA type requirements and marine standards is achieved in some overseas jurisdictions. We received a very useful submission from the International Association of Drilling Contractors (IADC) which supplied the text of the MOU between the Minerals Management Service of the US Department of the Interior and the US Coast Guard together with an annex titled '*Offshore Facility System/Sub-System Responsibility Matrix*'. This matrix identifies the lead agency for the various operational and integrity issues attending an offshore facility under US jurisdiction. The IADC submission noted that the matrix was effective under a prescriptive regulatory regime but that it may not be appropriate in a co-regulatory system. However, the matrix does bring together the disciplines and skills of offshore OHS and marine expertise. As the IADC comments:
- Each organization has expertise and experience, as well as jurisdictional authority that should be exploited. However, care must be exercised to avoid redundant and wasteful regulation.*
- 3.46 In summary, we can see that there is a justifiable reason for the disapplication of various pieces of Commonwealth maritime legislation, such as the OSHMI Act (two sets of OHS legislation and regulation could be inconsistent and ambiguous). However, we find it more difficult to understand why the Nav Act, which provides powers for AMSA to inspect ships, should be disappplied in all respects, rather than exempting facilities from inconsistent or inappropriate Nav Act provisions.
- 3.47 It is likely that the application of the Nav Act to facilities would not impose requirements on operators that they are not already meeting, either voluntarily or to meet the requirements of their flag State. We also note that AMSA already has the ability to exempt a declared offshore vessel, or a class of offshore vessel, from specific provisions of the Act or to apply specific provisions with prescribed modifications.²⁷
- 3.48 We are aware of the concerns in the offshore petroleum industry that there could be an increase in marine manning levels on board facilities if the Nav Act was to be applied to these vessels. However, most, if not all, operators of Australian registered ship-like facilities already have 'Safe Manning Certificates' (certificates that define the minimum safe manning considered necessary for a vessel comply

27 S.283D Navigation Act 1912

with the International Convention for the Safety of Life at Sea (SOLAS) issued by AMSA. Hence we believe that the application of relevant parts of the Nav Act would not, in itself, require any change to the current manning status quo.

- 3.49 AMSA issues safe manning certificates to Australian self propelled FPSOs and FSOs and other self propelled floating facilities. Generally, two safe manning certificates are issued to apply to given situations.
- 3.50 One certificate covers a ship when travelling on a planned voyage to and from dry dock or refit or if a ship reverts to an overseas or inter-State trading mode. This usually requires a marine crew of about 18 seafarers holding the necessary marine qualifications.
- 3.51 The second safety manning certificate is designed to cover instances where a disconnection is necessary to avoid a cyclone or in an emergency situation. The operator makes a safety assessment based on the requirements of International Maritime Organization (IMO) Resolution A.890 '*Principles of Safe Manning*' and the procedure for disconnecting. If AMSA accepts the proposed minimum safe crewing, based on the operator's safety assessment, a second certificate for a 'coastal voyage of not more than seven days' is issued. This methodology also allows for the crew to be trained in petroleum operations while holding basic marine crew training. In the case of overseas registered self propelled facilities, AMSA may write to a flag State administration explaining the basis of an AMSA assessment for a similar vessel. However, AMSA and the operator are bound to accept the flag State's interpretation of the international requirements.
- 3.52 There is little doubt that the offshore industry and policy bodies such as the Productivity Commission would be concerned at the signal that the reapplication of the Nav Act may send and conversely, that maritime unions would welcome such a change and may seek to exploit it with respect to Australian crewing levels.
- 3.53 We conclude that:
- the effect of the disapplication of Commonwealth maritime legislation in its entirety was not fully thought through and consultation with stakeholders appears to have been deficient;
 - the potential for Australians not to be covered by Australian maritime and OHS legislation is an unacceptable risk;

- there is a need for ship-like floating facilities to maintain international maritime standards of seaworthiness²⁸ in parallel with OPGGSA requirements;
- AMSA has the skills and expertise that would complement NOPSA inspections of ship-like floating facilities; and
- AMSA surveyors could provide a level of assurance and compliance with marine standards that would reduce the risk to the offshore workforce, both while a facility and in the event of a facility adopting a 'navigable form'.

R 3

We recommend that AMSA should have a role in assuring continuing marine standards that are not inconsistent with OPGGSA provisions and that AMSA needs defined powers to assist NOPSA in minimising risk in the offshore petroleum industry. Potential mechanisms for achieving this outcome include: providing AMSA with defined powers and obligations under the OPGGSA, thereby ensuring that the Authority becomes an effective inspector/regulator of vessels while they are deemed to be facilities; or revising the current Commonwealth maritime legislation disapplication provisions of the OPGGSA with the aim of achieving the same goal. If it can be readily achieved and is an efficient regulatory option, we believe the first option is preferable.

Safety case issues

3.54

While addressing our terms of reference, we further considered the effectiveness of the safety case co-regulatory regime and NOPSA's activities in the administration of the various Acts and regulations. Most of these issues are general in nature, applying to most types of facilities, and are considered in our report on NOPSA. However, we did find issues that apply specifically to vessels or were raised by stakeholders with a maritime interest.

3.55

As part of the inquiry, we spoke to representatives of *Castoro Otto's* operators, Saipem S.p.A., a Portuguese registered company that operates some 53 offshore vessels world-wide. They were of the opinion that, notwithstanding the fact that senior personnel (the decision makers) were company staff, safety on board the vessel was compromised by the introduction of an Australian crew and workforce who were less familiar with the vessel's operations.

28 Seaworthiness – Not only being in a fit state as regards state of repair to encounter the ordinary perils of the sea, but includes provision of competent master and crew, engines and fuel and other equipment and everything else necessary for a contemplated voyage.

- 3.56 In contrast, the Maritime Union of Australia (MUA) expressed the view that the safety case model had failed and gave undue power and decision making to the operator. They were also concerned that the operator was not necessarily the employer of the workforce. The Australian Institute of Marine Engineers (AIMPE) told us that while they accept the principle and concept of the safety case regime, they have reservations concerning its application. Both the MUA and the AIMPE stressed that their members, the workforce, are not actively involved in the preparation or formulation of safety cases on ship-like facilities.
- 3.57 MOSOF Regulation 15 requires that the operator of a facility must satisfactorily demonstrate to the authority, that:
...in the development or revision of the Safety Case in relation to the facility, there has been effective consultation with, and participation of, the workforce... .
- 3.58 The 2008 NOPSA review²⁹ noted that developing the safety case before the workforce is hired precludes their involvement in the safety case process. This holds for vessels becoming floating facilities. Recommendation 17 of the review states:
The Safety Case proponent should be allowed some flexibility to involve appropriate experience matched with the proposed workforce competencies to enable the Safety Case to be developed with value adding process. Subsequent to the hiring of the workforce and preferably before the commencement of operations a review of the Safety Case should take place with the new workforce to ensure they understand the accepted Safety Case, its risks and Safety Management Plan.
- 3.59 We do not consider that this recommendation meets the letter or spirit of the regulatory requirement. However, regardless of the practicality or otherwise of this provision, it is nevertheless a regulatory requirement that, prime facie, is not being met.
- 3.60 One solution offered to the Inquiry was to ensure that sufficient regular crew were retained on board a vessel to ensure safety case 'ownership'. In the case of overseas vessels this would mean retaining a certain proportion of foreign nationals as part of the workforce. Another solution was to involve workforce representatives in the formulation of the safety case, thus providing a transitional medium from formulation to workforce 'ownership'. Both alternatives have advantages and disadvantages that, in addition to technical issues, relate to language and culture. We consider that further work should be carried out to explore these issues.

29 Ognedal, M. Griffiths, D. and Lake, B. (2008).

The Navigation Act 1912

- 3.61 There has been much discussion in recent years surrounding the need to modernise and simplify the Nav Act. In 2000, a review of the Act³⁰ recommended its complete revision and the adoption of a more performance-based approach to this legislation.
- 3.62 The deliberations of this Inquiry, the consternation over the provision of appropriate legal advice and the various stakeholder submissions, all add substantial weight to this argument. Discussions with AMSA and other stakeholders have convinced us that the Nav Act is an arcane piece of legislation and that not even the best legal minds have an unambiguous view of its important provisions, many of which belong in the era of its first drafting.
- 3.63 We consider that a modern performance-based Nav Act would not only serve the interests of the Australian maritime industry but it would more effectively complement current Commonwealth offshore petroleum legislation and minimise confusion at interfaces. Such reform could provide a better means of clarifying AMSA's powers over offshore vessels and potentially remove the need for the OPGGSA's disapplication of maritime legislation.
- R 4 We recommend the Commonwealth consider a plain English rewrite of the *Navigation Act 1912* with the aim of producing a modern, performance-based Act.**

30 2000 *Navigation Act Review Final Report*, June 2000, Department of Transport and Regional Services.

Annex 1:

Biographies of panel and inquiry members

Expert Panel

Mr David Agostini

David Agostini is a consultant in the Oil and Gas sector having worked in the industry since 1957. He worked for Texaco as a petroleum engineer and production specialist, and later joined Woodside in a similar capacity. He subsequently managed drilling operations and offshore production. On secondment to Shell in the Hague he worked as deputy strategy manager for downstream oil and gas. Mr Agostini managed Woodside's LNG business, and was involved in marketing gas into Asia.

Mr Agostini is currently a non executive director of Neptune Marine, Chairman of the Western Australian Energy Research Alliance, and Chairman of the Australian Resources Research Centre (ARRC) advisory group. He chaired the state government Electricity Industry Reference Group (EIRG) and was a member of the COAG Energy Markets Review Panel. He holds engineering qualifications from the North Carolina State University, and is an Adjunct Professor in Oil & Gas Engineering at the University of Western Australia.

Mr Kym Bills

Kym Bills is Executive Director of the Australian Transport Safety Bureau, and has held that position since 1 July 1999 when the ATSB was established.

Mr Bills was head of the Commonwealth Maritime Division from 1994 when he was on the Board of ANL Limited and the Australian Maritime Safety Authority and chaired the Commonwealth/State Marine and Ports Group. In 2005 he worked with the Rt Hon Sir John Wheeler reviewing Australia's airport security and policing.

Mr Bills's initial degrees were a B.A (Hons I) from the University of Adelaide and a M.Sc from the University of Oxford. He holds professional fellowships with the Chartered Institute of Logistics and Transport, the Safety Institute of Australia, the Australian Institute of Management, and the Australian Institute of Company Directors.

Marine research team

Mr C.W. (Kit) Filor, PSM

Kit Filor is a Master Mariner. Prior to retiring from the Public Service in September 2006, Mr Filor spent 24 years in the maritime area of the Department of Transport. For 20 of these years he was responsible for the investigation of marine accidents and incidents falling within Commonwealth jurisdiction. He has been responsible for over 200 marine safety investigation reports. Mr Filor was indentured to the BP Tanker Company in 1960. His sea-going career included world-wide trading in tankers and on British Rail cross channel ferries, between Weymouth to the Channel Islands and Cherbourg, where he sailed as Master from 1977 to 1982. Mr Filor was the moving force behind the International Maritime Organization (IMO) Code for the Investigation of Marine Casualties and Incidents. He created the current IMO Course for accident investigation and has lectured widely on behalf of the IMO on the topic. Mr Filor is a Fellow of the Nautical Institute and in 1996 was awarded the Public Service Medal for services to maritime safety.

Mr Stephen Curry

Stephen Curry is a Senior Transport Safety Investigator with the Australian Transport Safety Bureau's Marine Unit. Before joining the ATSB, Mr Curry worked as an engineer in the maritime industry for over 25 years. Towards the end of that time he was involved in the implementation of ISM Code safety management systems on board many Australian ships. Mr Curry is qualified as both an engineer and a transport safety investigator and holds a current 'Australian Marine Engineer Class 1' certificate of competency.

Mr David Lesslie

David Lesslie is a Consultant specialising in providing advisory services in upstream oil and gas and Health, Safety and Environment management. He is an experienced oil and gas executive with more than twenty-five years professional background in corporate, managerial, technical and consulting roles. He has held various positions with Woodside Energy Ltd from 1981–2006. He has significant experience in upstream oil and gas developments, including LNG, and has worked as an operational manager of two offshore facilities in Australia.

Mr Lesslie has a Master of Engineering Science and a Bachelor of Mechanical Engineering (Honours) from the University of Melbourne.

Secretariat

Secretariat support to the addendum Inquiry was provided by the Commonwealth Government.

The Secretariat comprised:

- Juliet Lautenbach – headed the Commonwealth Secretariat on secondment from the Department of Resources Energy and Tourism, Resources Division.
- Joanna Bunting – is an assistant manager on secondment from the Department of Resources, Energy and Tourism, Energy and Environment Division.
- Dianne Bravo – is a research officer seconded from the Department of Resources, Energy and Tourism, Energy and Environment Division.
- David Hope – from the Australian Safety Transport Bureau provided desktop publishing services.

Annex 2:

Submissions, visits and meetings held

As part of the wider Inquiry into Offshore Petroleum Safety Regulation, the panel invited and sought submissions from interested parties. The following are of relevance to the marine interface issue.

Submissions

- 1 International Association of Drilling Contractors (IADC)
- 2 Chevron Australia Pty Ltd
- 3 HolisTech
- 4 The Hon Francis Logan MLA
- 10 Confidential
- 12 The Maritime Union of Australia (National Office) (MUA)
- 14 Australian Shipowners Association (ASA)
- 15 Australian Petroleum Production & Exploration Association Limited (APPEA)
- 17 National Offshore Petroleum Safety Authority (NOPSA)
- 18 International Marine Contractors Association (IMCA)
- 20 Confidential
- 22 Teekay Marine Services
- 24 Australian Institute of Marine & Power Engineers (AIMPE)

Meetings

The Inquiry team met with the following at least once, with multiple meetings with key regulators and stakeholders.

Ministers

Commonwealth

- Minister for Resources & Energy, Minister for Tourism
The Hon Martin Ferguson AM MP and senior staff.

State/Territory

- WA Minister for Mines and Petroleum The Hon Norman Moore
MLC and senior staff.

Government bodies

Western Australia

- Department of Mines and Petroleum, Director Petroleum & Environment Mr Bill Tinapple and Ms Beverley Bower
- Department of Planning and Infrastructure, General Manager Marine Safety Mr David Harrod

Commonwealth

- Australian Maritime Safety Authority at Fremantle Office, CEO Mr Graham Peachey and staff
- Australian Maritime Safety Authority, Deputy CEO Mr Michael Kinley, Mr Jim Martin and Canberra staff
- National Offshore Petroleum Safety Authority, CEO Mr John Clegg and Perth headquarters staff

Industry and associations

- Australian Institute of Marine & Power Engineers, WA Branch Secretary Mr Philip Olsen
- Maritime Union of Australia, Communication and Research Officer Mr Rod Pickette
- Australian Petroleum Production & Exploration Association, Director Skills & Safety Ms Miranda Taylor
- Teekay Shipping Australia Pty Ltd, Director Marine and Offshore Services Mr Noel Lacey, Offshore Operations Manager Mr Zubin Bhada and colleagues
- Saipem (Portugal) Comercio Maritimo, Project Manager Mr Fabio di Giorgi and QHSE Manager Mr Alan Armstrong

Bibliography

Australian Government documents

- Australian Government 2007, *Best practice regulation handbook*, Canberra.
- Australian Government 2008, *National Review into model occupational health and safety laws*, first report, 30 October, Canberra.
- Australian Government 2009, *National Review into model occupational health and safety laws*, second report, 30 January, Canberra.
- Australian Maritime Safety Authority (AMSA) and National Offshore Petroleum Safety Authority (NOPSA) 2004, *Memorandum of understanding between the Australian Maritime Safety Authority and the National Offshore Petroleum Safety Authority concerning cooperation on safety arrangements for the offshore petroleum sector*, 17 December.
- Australian National Audit Office 2007, *Administering regulation: better practice guide*, Canberra, March.
- Australian Safety and Compensation Council (ASCC) 2008, *Comparative performance monitoring report: comparison of occupational health and safety and workers' compensation schemes in Australia and New Zealand, 10th edn*, Department of Education, Employment and Workplace Relations, Canberra.
- Australian Transport Council (ATC) 2008, *Joint communiqué*, 7 November, ATC.
- Australian Transport Safety Bureau (ATSB) 2007, *Australian Transport Safety Investigation report: marine occurrence investigation No. 226: Hawser failure and manoeuvring difficulties on board Dampier Spirit during cyclone Hubert*, ATSB, Canberra.
- Australian Transport Safety Bureau (ATSB) 2007, *ATSB Transport Safety Investigation report: marine occurrence investigation No. 220, final: independent investigation into the fires on board the Panamanian registered accommodation platform: Safe Concordia in Bass Strait, Victoria, 12 and 18 September 2005*, ATSB, Canberra.
- Australian Transport Safety Bureau (ATSB) 2007, *ATSB Transport Safety Investigation report: marine occurrence investigation No. 231, final: independent investigation into the grounding of the Vanuatu registered offshore tug/supply ship Massive Tide on Rosemary Island, Western Australia, 29 August 2006*, ATSB, Canberra.
- Australian Transport Safety Bureau (ATSB) 2008, *ATSB Transport Safety Investigation report: marine occurrence investigation No. 243, final: independent investigation into the grounding of the Panamanian registered bulk carrier Pasha Bulker on Nobbys Beach, Newcastle, New South Wales, 8 June 2007*, ATSB, Canberra.

- Council of Australian Governments (COAG) 2008, *Inter-governmental agreement for regulatory and operational reform in occupational health and safety*, 3 July, COAG.
- Department of Industry, Science and Resources 2001, *Future arrangement for the regulation of offshore petroleum safety: Australian offshore petroleum safety case review*, Canberra.
- Department of Industry, Tourism and Resources 2003, *Creating a new offshore petroleum safety regulator*, presentation to IACD, APPEA conference, 25 March.
- Department of Resources, Energy and Tourism 2008, *Review of the National Offshore Petroleum Safety Authority operational activities, February – March 2008: Draft Government response to the report of the Independent Review Team*, Canberra.
- Department of Transport and Regional Services 2000, *Navigation Act review final report*, June, Canberra.
- Department of Transport and Regional Services 2004, *A framework for risk management and governance assurance*, Canberra.
- Finnestrud, O, Ognedal, M and Spence, E 2003, *The National Offshore Petroleum Safety Authority review of implementation activities June 2003; report of the independent review team*, Canberra.
- Ognedal, M, Griffiths, D and Lake, B 2008, *Review of the National Offshore Petroleum Safety Authority operational activities, February – March 2008: report of the independent review team*, Department of Resources, Energy and Tourism, Canberra.
- Productivity Commission 2009, *Review of regulatory burden on the upstream petroleum (oil and gas) sector*, Research Report, Melbourne.
- Walker, M and Bills, K 2008, *Analysis, Causality and Proof in Safety Investigations*, ATSB (Australian Transport Safety Bureau), Canberra.

National Offshore Petroleum Safety Authority (NOPSA) documents

- 2003, *Explanatory memorandum – Petroleum (Submerged Lands) Amendment Bill 2003*, House of Representatives, the Parliament of the Commonwealth of Australia.
- NOPSA 2004, *Safety case guidelines*, September.
- NOPSA 2005, *NOPSA Relationships management liaison with operators policy*, rev 0, PL202, 4 March.
- NOPSA 2006, *Statement of expectations – NOPSA*.
- NOPSA 2006, *Statement of intent – NOPSA*.
- NOPSA (National Offshore Petroleum Safety Authority) 2007, *Safety case assessment operating procedure*, rev 1, September.

NOPSA 2007, *Standard operating procedure: enforcement management model – N-050000-SOPO147*.

NOPSA 2007, *Standard operating procedure: safety case assessment*.

NOPSA 2008, *Compliance and enforcement policy*, PL0067, ver 8.0, 23 July.

NOPSA 2008, *Draft guidance note: safety case content and level of detail*.

NOPSA 2008, *Draft guidance note: safety case lifecycle content and level of detail*.

NOPSA 2008, *Draft guidance note: the safety case in context: an overview of the safety case regime*.

NOPSA 2008, *Guideline: glossary of regulatory operations*, GL0326, ver 2.1.

NOPSA 2008, *Investigation handbook*, December.

NOPSA 2008, *NOPSA annual report 2007-08*.

NOPSA 2008, *Policy: inspections and audit*, PL0025, 1 July.

NOPSA 2008, *Procedure: planned inspection preparation operating procedure*, 1 July, SOP 0290.

NOPSA 2008, *Safety case assessment policy*, ver 5.1, PL0052, February.

NOPSA 2008, *Standard operating procedure: conducting a planned inspection*.

NOPSA 2008, *Standard operating procedure: planned inspection preparation*.

NOPSA 2008, *Standard operating procedure: planned inspection programme*.

NOPSA 2008, *Standard operating procedure: post inspection*.

NOPSA 2008, *Work instruction: selecting inspection items*.

NOPSA 2009, *Memorandum of understanding between the Australian Maritime Safety Authority and the National Offshore Petroleum Safety Authority concerning cooperation on safety arrangements for the offshore petroleum sector*, February.

The Inquiry also had access to a range of NOPSA inspection, incident and enforcement reports relevant to the Terms of Reference.

Other key documents

Published works

- Barrell, T 1996, *The regulation of health and safety in the Australian offshore petroleum industry (1996 Barrell Report)*, Canberra.
- Bazerman, MH and Watkins, MD 2004, *Predictable surprises: the disasters you should have seen coming and how to prevent them*, Harvard Business School Press, Boston.
- Clarke, LJ 2000, *Thames Safety Inquiry*, Final Report, House of Commons, UK.
- Clarke, SG, Glendon, AI and McKenna, EF 2006, *Human safety and risk management*, 2nd edition, Taylor and Francis Group, Florida.
- Home Office Working Group 1997, *Report of the disasters and inquests working group*, HMSO, United Kingdom.
- Reason, J 1997, *Managing risks of organizational accidents*, Ashgate Publishing Limited, Aldershot.
- Turner, B 1978, *Man-made disasters*, Wykeham, London.

Court proceedings

- Administrative Appeals Tribunal determination 1997, *Gabriella Jean Pisioneri on behalf of Kimberley Ellen Collins and Emma Maria Collins v Tidewater Port Jackson Marine*, No. A96/6 AAT No. 12487.
- Administrative Review Council 2008, *Administrative accountability in business areas subject to complex and specific regulation*, Report No. 49, November 2008.

Legislation

- Navigation Act 1912* (Cwlth).
- Occupational health and safety extracted from Offshore Petroleum Act 2006, Act No. 14 of 2006 as amended, Schedule 3* (Cwlth).
- Occupational Health and Safety (Maritime Industry) Act 1993, Act No. 10 of 1994 as amended* (Cwlth).
- Offshore Petroleum and Greenhouse Gas Storage Act 2006, Act No. 14 of 2006 as amended* (Cwlth).
- Petroleum Pipelines Act 1969* (WA).
- Petroleum Pipelines Regulations 1970* (WA).
- Petroleum (Submerged Lands) Act 1967* (Cwlth).
- Petroleum (Submerged Lands) Act 1982* (WA).

Petroleum (Submerged Lands) Amendment Act 2003, No. 118, 2003 (Cwlth).

Petroleum (Submerged Lands) Amendment Bill 2003, Explanatory Memorandum (Cwlth).

Petroleum (Submerged Lands) (Management of Safety on Offshore Facilities) Regulations 1996, Statutory Rules 1996 No.298 as amended (Cwlth).

Petroleum (Submerged Lands) (Management of Safety on Offshore Facilities) Regulations 1996 (Cwlth).

Petroleum (Submerged Lands) (Occupational Health and Safety) Regulations 1993 (Cwlth).

Petroleum (Submerged Lands) (Pipelines) Regulations 2001 (Cwlth).

Protection of the Sea (Prevention of Pollution from Ships) Act 1983, Act No. 41 of 1983 as amended (Cwlth).

The Australian Constitution, as altered to 1 January 1988 (Cwlth).

Media

NOPSA (National Offshore Petroleum Safety Authority) 2008, Fatal accident on the Karratha Spirit facility, media release, NOPSA, 31 December.

