



Government of Western Australia
Department of Mines and Petroleum



Department of Mines and Petroleum Response to Report: 'Offshore Petroleum Safety Regulation: Varanus Island Incident Investigation'



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Department of Mines and Petroleum Response to Report: 'Offshore Petroleum Safety Regulation: Varanus Island Incident Investigation'

Background

The Department of Mines and Petroleum (DMP) is responsible for regulating extractive industries in Western Australia; ensuring that safety, environmental practice and resource management meet all relevant legislation, regulations, guidelines and policies.

DMP regulates petroleum and geothermal activities through the *Petroleum and Geothermal Energy Resources Act 1967*, the *Petroleum Pipelines Act 1969* and numerous best practice regulations. Industry operators are responsible for safety at facilities and the regulator provides assurance that operators are managing safety risks adequately.

The Varanus Island facility is licensed to Apache Northwest Pty Ltd (Apache), Kufpec Australia Pty Ltd & Tap (Harriet) Pty Ltd (Apache Northwest and Others), and is operated by Apache. On 3 June 2008, the Varanus Island facility suffered a series of explosions and fire (the incident), with no reported injuries or fatalities arising.

An investigation of the 2008 incident began on 4 June 2008, with a report prepared for the then Department of Industry and Resources (DoIR) by the National Offshore Petroleum Safety Authority (NOPSA).

In May 2009, the Western Australian Minister for Mines and Petroleum, Hon Norman Moore MLC, commissioned a final phase of the investigation titled 'Offshore Petroleum Safety Regulation: Varanus Island Incident Investigation' by Kym Bills and David Agostini (the Report).

The purpose of the Report was to identify the facts, events and causes of the incident, continuing on the investigation conducted in the initial 2008 National Offshore Petroleum Safety Authority (NOPSA) report. In addition, the Report was also compiled to consider the broad safety and regulatory environment and include, if necessary, recommendations to improve the State petroleum regulatory regime.

Upon receiving the report, DMP commenced prosecution action against Apache Northwest & Others on 27 May 2009, for breaching section 38(b) of the *Petroleum Pipelines Act 1969* (WA). The prosecution alleged they failed to maintain the pipeline in good condition and repair.

In addition to prosecution action, the Report has been used within DMP to implement significant petroleum reform actions, aimed at ensuring a similar incident does not happen again.

The reform actions that have been undertaken since the incident can be categorised in three broad areas (1) new department to provide focused and integrated regulation, with additional resources (2) amended legislation to clarify the full duty of care safety case regime through regulation (3) clear delineation between State and Commonwealth agency responsibilities.

Reform actions taken since the incident

At the time of the incident the then DoIR was the regulator, with NOPSA providing inspections and reporting services to DoIR under a contract agreement.

With the formation of DMP on 1 January 2009, the regulation of extractive industries including the petroleum sector became the responsibility of the new department. In addition, resources safety responsibilities transferred from the then Department of Consumer and Employment Protection (DoCEP) to DMP.

Department of Mines and Petroleum Response to Report: 'Offshore Petroleum Safety Regulation: Varanus Island Incident Investigation'

DMP has made major changes to resourcing to more effectively regulate mine safety, with reforms extended to the petroleum sector. Twelve petroleum safety specialist positions have been created to further strengthen service delivery, representing a 40% increase from 2008 staffing levels. Additional positions will be created and recruited in line with future industry development.

In January 2012, the *Petroleum and Geothermal Energy Safety Levies Act 2011* introduced levies for petroleum, geothermal energy and pipeline operations. These will ensure that safety regulatory services are fully funded by industry. The levies create a source of funds that will be used to enhance leading petroleum practice, through continuous improvement processes.

As part of our commitment to continuous improvement, DMP has initiated a review of the offence and penalty regimes in all petroleum and mining legislation. The review will include an analysis of other jurisdictions and is expected to be completed in 2012.

To clearly delineate between State and Commonwealth agency responsibilities, amendments to State and Commonwealth legislation came into force on 1 January 2012. This change removed NOPSA as the safety regulator in State waters, and replaced them with DMP regulation of safety in WA areas. Amendments to WA legislation provide for:

- a) Establishment of a clear division between the Commonwealth Offshore Regulators and DMP (i.e. outer limit of the three nautical mile wide Territorial Sea);
- b) A consistent approach to safety, well integrity and security of supply for all WA areas including onshore, islands and coastal waters;
- c) Clarification of the responsibilities and powers of Ministers to intervene to remedy any incident that occurs.

Regulatory framework changes since the incident

Petroleum Pipelines (Management of Safety of Pipeline Operations) Regulations 2010

May 2010: The regulations address the management of safety and health, which established a full duty-of-care safety case regime to align with Commonwealth safety case requirements. These regulations more clearly outline industry validation requirements, with Design and Manufactures Data Report (MDR) validation a legal requirement and part of the approval process before a licence will be issued. Furthermore, operators are required, as part of the safety case process, to have formal processes and systems in place to ensure corrosion protection systems are adequate and properly maintained.

Petroleum (Submerged Lands) Act 1982

January 2012: The functions of the National Offshore Petroleum Safety Authority (NOPSA) were revoked and replaced with DMP functions as safety regulator of State areas. The State areas require a safety case regime aligned with the Commonwealth areas.

Petroleum and Geothermal Energy Safety Levies Act 2011

January 2012: Levies for petroleum, geothermal energy and pipeline operations were introduced, ensuring safety regulatory services are fully funded by industry. The levies create a source of funds that will be used to enhance leading petroleum practice, through continuous improvement processes.

Department of Mines and Petroleum Response to Report: 'Offshore Petroleum Safety Regulation: Varanus Island Incident Investigation'

Petroleum and Geothermal Energy Resources Act 1967

December 2011: WA petroleum environmental regulations were drafted to ensure petroleum and geothermal activity is conducted in an environmental responsible manner. The following regulations are anticipated to be in place during 2012: *Petroleum and Geothermal Energy Resources (Environment) Regulations 2011*, *Petroleum (Submerged Lands) (Environment) Regulations 2011* and *Petroleum Pipelines (Environment) Regulations 2012*.

Mid-2012: WA petroleum resources regulations will be drafted to incorporate drilling, data management and resource management provisions. They aim to ensure operations are carried out in accordance with good industry practice for the optimum long-term recovery of the resource; timely and consistent reporting of exploration; discovery and appraisal of resources and production operations. The following regulations are anticipated to be in place during 2012: *Petroleum and Geothermal Energy Resources (Resource Management and Administration) Regulations* and *Petroleum (Submerged Lands) (Resource Management and Administration) Regulations*.

About the Report inspectors

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 Energy in a similar capacity. He subsequently managed drilling operations and offshore production. On secondment to Shell in the Haugue, he worked as Deputy Strategy Manager for downstream oils and gas. Mr Agostini managed Woodside's LNG business and was involved in marketing gas into Asia.

Mr Agostini is currently the Chairman of the Western Australian Energy Research Alliance (WA:ERA). He has also chaired the Australian Resources Research Centre (ARRC) advisory group, the State Government Electricity Industry Reference Group (EIRG) and was a member of the COAG Energy Review Panel. He holds engineering qualifications from the North Carolina State University.

Mr Kym Bills

Kym Bills is the current Chief Executive Officer of the Western Australian Energy Research Alliance (WA:ERA), a collaborative energy-related research alliance between the University of Western Australia, Curtin University and the Commonwealth Scientific and Industrial Research Organisation. He has held the position since August 2011 and is also a board member of the National Offshore Petroleum Safety and Environmental Management Authority.

Previously the Executive Director of the Australian Transport Safety Bureau, Mr Bills has also been the head of the Commonwealth Maritime Division. He has also held board positions at 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' 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, the Australian Institute of Company Directors and the Australian Institute of Energy.

Department of Mines and Petroleum Response to Report: 'Offshore Petroleum Safety Regulation: Varanus Island Incident Investigation'

Report recommendations	DMP response
<p>R1 We recommend that Western Australia seeks the establishment of a properly resourced independent national safety investigation body to investigate serious offshore oil and gas and onshore petroleum pipeline accidents and incidents. The body should be empowered to compel documents and witnesses and be required to make public a professional systemic no-blame investigation report that is appropriately protected from legal action for the purpose of improving future safety. (p 64)</p>	<p>The Department of Mines and Petroleum (DMP) has established a Western Australian Resources Safety Investigation Unit that provides petroleum safety investigation services. A General Manager and Senior Investigator have been appointed to lead the unit and internal policies and procedures developed to facilitate the investigation of serious oil and gas petroleum pipeline incidents. Investigators are empowered under Western Australian petroleum legislation to compel petroleum operators to produce documents and provide witness statements.</p>
<p>R2 We recommend that DMP ensure that there is clarity in its regulation of safety across oil and gas and other high hazard industries in terms of which standards are required to be applied under licences, regulation and legislation and that there is an obligation upon operators to apply the most appropriate standard to reduce risk to ALARP in accordance with good industry practice. (p 66)</p>	<p>The remaining parts of the <i>Western Australian Petroleum Legislation Amendment and Repeal Act 2005</i> (PLARA) were proclaimed in May 2010. The PLARA introduces a substantive occupational safety, health and management of safety regime into the <i>WA Petroleum and Geothermal Energy Resources Act 1967</i> and the <i>Petroleum Pipelines Act 1969</i>.</p> <p>This change provides more clarity and consistency to the regulation and standards that apply to all petroleum operations in WA. Safety case requirements include the identification and application of the most appropriate standards to reduce risk to as low as reasonably practicable (ALARP).</p>
<p>R3 We recommend that WA ensure, as a matter of urgency, that all of its legislation and regulation mirrors Commonwealth offshore legislation and regulation and enables and facilitates the exchange of safety information between jurisdictions. In the interim, WA should seek to amend existing licence and safety case requirements to facilitate exchange of safety material. (p 100)</p>	<p>Petroleum safety case regulations aligning with offshore Commonwealth Safety Case requirements were implemented in May 2010. This alignment of safety case requirements between jurisdictions helps facilitate the exchange of safety information. A Memorandum of Understanding (MOU) between the State and Federal Governments was established in May 2011 – instigating an Executive Liaison Committee that meets on a quarterly basis. Two meetings have already been held. In June 2012, the State Government will commence providing monthly electronic statistical information in relation to petroleum incidents and accidents to NOPSEMA.</p>

Department of Mines and Petroleum Response to Report: 'Offshore Petroleum Safety Regulation: Varanus Island Incident Investigation'

Report recommendations

R4 We recommend that where it has regulatory responsibility, DMP develop and maintain a database of licence conditions and actively monitor compliance of those conditions. Licences should be updated to remove outdated conditions and clarify remaining applicability and any agreement to remove requirements should be documented. (p 102)

R5 We recommend that pipeline licences should be used for significant pipelines and not major offshore facilities like Varanus Island. (p 102)

R6 We recommend that if a validation report has been required to support a regulatory approval, the regulator should ensure that the complete report is received and considered as part of the approval process. The regulator should also be able to speak directly to the validation team to discuss further any issues raised within the report. This may require amendment to legislation to ensure that the regulator can engage in confidential discussions with the validator without the operator present. (p 104) xxiv

R7 We recommend that WA support a full duty of care/safety case co-regulatory regime for offshore oil and gas across Commonwealth and State coastal and internal waters which minimises jurisdictional and regulatory interfaces and ensures that a competent regulator is appropriately resourced. (p 105)

DMP response

The WA Petroleum Geothermal Register (PGR) has been established to provide an electronic register of WA pipeline licences and licence conditions. The PGR is accessible to the public. DMP monitors compliance with licence conditions and has a program to replace or remove outdated conditions.

Whilst infrastructure licences have been introduced into the *WA Petroleum (Submerged Lands) Act 1982* as of 25 May 2011, DMP has regarded other forms of tenure more appropriate onshore. This approach is supported by the introduction of the Petroleum Pipelines (Management of Safety of pipeline Operations) Regulations 2010, which provides a safety case regime for onshore and island pipelines.

Section 41 of the new Petroleum Pipelines (Management of Safety of Pipeline Operations) Regulations 2010 address validation requirements. Validation is a formal part of the legislative approval process.

State waters regulated under the *WA Petroleum (Submerged Lands) Act 1982* are now subject to a safety case regime that aligns with the Commonwealth legislation in adjacent waters. In addition, new Petroleum Pipelines (Management of Safety of Pipeline Operations) Regulations 2010, gazetted on 15 May 2010, provide a consistent Safety Case regime for all pipelines administered in WA under the *Petroleum Pipelines Act 1969*. This aligns State and Commonwealth legislation and minimises regulatory interfaces.

Department of Mines and Petroleum Response to Report: 'Offshore Petroleum Safety Regulation: Varanus Island Incident Investigation'

Report recommendations

R8 We recommend that DMP develop a robust risk assessment matrix for use in assessing and responding to the safety culture, motivation, capacity and changing risk associated with each oil and gas and major hazard operator and facility. (p 118)

DMP response

DMP applies the Australian risk management standard AS/NZ ISO 31000-2009 and the Australian pipeline standard AS 2885 as part of the assessment of petroleum proposals. Quantitative risk assessment (QRA), utilising the Australian/New Zealand risk management standard ISO 31000-2009, is applied in the assessment of major hazard facilities. Addressing behavioral and safety culture issues are normally addressed within the safety case approach, as adopted by the State Government.

R9 We recommend that WA confer powers to enable NOPSA to regulate all offshore safety and integrity including all facilities and pipelines in the water and the WA islands (including Varanus Island) which export gas by pipeline. NOPSA's authority should extend to the nearest valve on the mainland above the shore crossing or other logical system boundary. (p 119)

The Western Australian Government has not endorsed this recommendation. Effective 1 January 2012, amendments to the *WA Petroleum (Submerged Lands) Act 1982* (PSLA 82) revoked the functions and powers of the National Offshore Petroleum Safety Authority (NOPSA) and replaced it with the DMP as the petroleum authority in State waters.

This provides:

- A clear demarcation point between the Commonwealth Offshore Regulators and DMP (i.e. the outer limit of the three nautical mile wide Territorial Sea).
- A consistent approach to safety, integrity and security of supply for all WA areas including onshore, islands and State waters.
- The ability for the State Minister and the Commonwealth Minister to intervene to remedy any incident that may occur and implement reforms and control areas where each is held accountable.

R10 We recommend that following a decision to confer power to NOPSA that includes Varanus Island, WA seek a mechanism for the Commonwealth to enable NOPSA to provide short-term regulatory services pending the conferral. This may involve the appointment of NOPSA officers and supervisors as inspectors under WA legislation. (p 119)

The WA Government has not endorsed this recommendation. Refer to the response to recommendation nine above.

Department of Mines and Petroleum Response to Report: 'Offshore Petroleum Safety Regulation: Varanus Island Incident Investigation'

Report recommendations	DMP response
R11 We recommend that the potential for conflict between safety outcomes and environmental outcomes be recognised and openly considered as part of project approvals. Moreover it is important that a holistic view is taken of major facility hubs as new developments are added to ensure risks are not being added that are unidentified and not managed. This is an issue which would benefit from further, targeted research. (p 121)	Since 1Q 2011, DMP safety and environment project assessment officers have been co-located in Mineral House, providing a more holistic approach for major project proposal assessments.
R12 We recommend that DMP review and seek to minimise potential conflicts of interest with respect to the offshore industry of its administrative arrangements, delegations and functions for policy, resource management, environmental regulation, safety regulation and safety investigation. (p 122)	Petroleum Pipeline Regulations introduced in May 2010 effectively decouple and separate the safety regulation and inspection areas from the pipeline licensing and administration areas of DMP. This minimises any potential conflicts of interest.
R13 We recommend that as a condition of PL12 licence renewal WA require a full assessment of corrosion protection systems on Varanus Island, including the technical design and operation of cathodic protection at shore crossings with multiple pipelines and possible interference and stray current effects. (p 139)	Varanus Island pipelines have been subjected to inline inspections, including assessment of pipeline integrity and cathodic protection systems. Safety audits of Varanus Island and other oil and gas facilities in WA have been assessed against the safety case requirements in force and the operating requirements of the Australian Pipeline Standard AS 2885. DMP has required all WA pipeline operators to review their safety cases to confirm 'fitness for purpose'.
R14 We recommend that Western Australia facilitate establishment of a formal technical committee which brings together corrosion expertise from industry, professional associations, regulators, and academia with the purpose of promoting best practice in asset integrity assurance. We also support the establishment of a certification system for personnel carrying out cathodic protection services, along the lines of the European or Us (NACE) models. (p 139)	New WA petroleum pipeline regulations require persons with appropriate formal expertise to assess corrosion protection systems as part of the safety case process. DMP has access to expert groups such as the WA Chemcentre and the Curtin University corrosion research unit.

Developing a sustainable resources future

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