



SUBMISSION NO. 1
Environment Protection
Biodiversity Conservation

Premier of Western Australia

Our ref: D1109451

The Hon Dick Adams MP
Chair, Standing Committee on Agriculture,
Resources, Fisheries and Forestry
PO Box 6021
Parliament House
CANBERRA ACT 2600

Dear Mr Adams

**WA Submission: Environment Protection and Biodiversity Conservation
Amendment (Mining, Petroleum And Water Resources) Bill 2011**

Thank you for your letter dated 13 October 2011 seeking a submission from the Western Australian Government regarding the issues addressed by the above Bill, and requesting information on Western Australia's approach to the following matters:

- the environmental regulation of mining operations, especially as they relate to the extraction of coal seam gas;
- recent policy developments;
- planned future developments in this policy area; and
- the practicalities of implementing such a Bill, were it to be passed into law.

The Western Australian Government has implemented significant reform of the project approvals process in the State through a 'Lead Agency Framework', which provides a better coordinated and integrated process across Government for responsible state development. Through the Framework, major projects are assigned to a lead agency that works with project proponents to manage all government interactions and statutory approvals - helping to improve efficiency and reduce the time taken to deliver projects, whilst fully considering the public interest.

Parallel processing of approvals occurs across agencies responsible for water, environment, mining, petroleum and geothermal energy - to ensure efficient assessment of proposals, issues are identified and addressed, and projects are most effectively regulated.

Western Australia's existing environmental legislative and regulatory framework is well placed to manage the impacts from unconventional gas extraction. The Western Australian Government is committed to a regulatory regime that ensures responsible development of this resource while protecting the environment, groundwater resources and public health. Recent initiatives in the mining and petroleum portfolio have been undertaken to ensure that the State's regulatory framework meets global best practice, and are supported by appropriate and transparent processes, standards and guidelines. For example, the Department for Mines and Petroleum (DMP) publishes guidance statements advising project proponents of what is expected to be addressed in their applications for exploration and production activities. See the attachment on Agency Arrangements for further information.

The State of Western Australia has a bilateral agreement with the Commonwealth that allows the Australian Government Minister for Sustainability, Environment, Water, Population and Communities to rely on specified environmental impact assessment processes of the State of Western Australia in assessing actions under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Onshore unconventional gas, and in particular shale gas, is likely to be an important part of Western Australia's energy future and there are likely to be an increasing number of unconventional gas projects developed. An assessment of world shale gas resources by the United States Energy Information Agency has estimated that Western Australia holds the world's fifth largest reserves of shale gas in the Canning and Perth basins, representing about twice Western Australia's offshore gas reserves. Although not verified by the Western Australian Government, the estimate is considered fair based on current available knowledge.

The DMP advises that while Western Australia has abundant shale and tight gas prospects, it has limited coal seam gas resources.

Shale and tight gas resources are typically located between 1,500 to 5,000 metres below the surface, whereas coal seam gas is generally found between 600 and 1,000 metres below the surface - thus, there is a different risk profile. Fracking in tight formations has been used in the oil and gas industry in Western Australia for the past 50 years without any known adverse environmental impact.

If introduced, the proposed Commonwealth legislation will result in significant regulatory duplication across State and Commonwealth agencies, and is likely to result in increased timeframes, uncertainty and complexity for project approvals. I believe that additional Commonwealth regulation is unwarranted given the existing strong framework which exists in Western Australia. Western Australia shares the concerns of other States and industry, that greater problems will beset existing State approvals processes as a result of unwarranted extensions of the EPBC Act. The Council of Australian Governments has recently established a new working group to streamline environmental approvals largely in response to this problem of duplicate requirements and processes.

Furthermore, the situation in Western Australia is markedly different than that experienced in the eastern states where there are potable water supplies that cross jurisdictional boundaries and where water supplies and coal seam gas activities interfere with each other.

I trust this information assists you in understanding the environmental regulation of mining operations in Western Australia, particularly in reference to unconventional gas extraction and fracking activities.

Yours sincerely

Colin Barnett MLA
PREMIER

Att.: EPA Bulletin No.13: WA Regulation – Hydraulic Fracturing of Gas Reserves;
WA Regulation of Hydraulic Fracturing – further information

cc: Minister for Mines and Petroleum (WA)
Minister for Environment (WA)

21 NOV 2011

WA Regulation of Hydraulic Fracturing – Agency Arrangements

In Western Australia, the DMP is the lead agency responsible for the regulation of unconventional gas activities, including fracking activities.

Mining, petroleum and geothermal activities in Western Australia are primarily regulated through the *Mining Act 1978 (WA)*, and the *Petroleum and Geothermal Energy Resources Act 1967 (WA)*, both administered by the DMP; and the *Environmental Protection Act 1986 (WA)* (EP Act), administered by the Department of Environment and Conservation, Environmental Protection Authority (EPA) and the Office of the EPA (OEPA). Shale, tight and coal seam gas are regulated using similar processes to conventional oil and gas activities under the *Petroleum and Geothermal Energy Resources Act 1967*, *Petroleum Pipelines Act 1969* and the *Schedule of Onshore Petroleum Exploration and Production Requirements 1991*.

Proposals that are likely to have a significant environmental impact are referred to the EPA under section 38 of the EP Act (Part IV of the EP Act). Also, under the DMP/EPA Memorandum of Understanding, the DMP is to refer any mineral and petroleum exploration and production proposals it considers may have a significant environmental impact to the EPA for its consideration and assessment. For example, if an activity is proposed within 500 metres on an environmentally sensitive area. The DMP will also liaise with the EPA if a proposed activity is within two kilometres of a town site, the coastline or likely to impact a water resource area (including a water reserve, water catchment and groundwater protection area and declared or proposed water supply catchment). The EPA will determine whether to assess fracking related projects that are referred to it on a case-by-case basis, in the same manner as for other petroleum and mining proposals.

In addition, the DMP also refers exploration and production proposals to the Department of Water (DOW) for its consideration and advice on appropriate conditions for inclusion in any approval.

DEC regulates exploration and production activities under Part V of the EP Act and a works approval and licence is required for proposals where gas flaring is 5,000 cubic metres or more per year. The provisions for pollution and environmental harm offences under the EP Act can also be used when activities are found to have significant environmental impact. The *Contaminated Sites Act 2003* is relevant to managing contamination of groundwater and surface water resources by gas extraction and fracking activities.

Matters related to water resources are regulated by the Department of Water under the *Rights in Water and Irrigation Act 1914* (RIWI Act). The RIWI Act establishes the legislative framework for managing and allocating water resources in Western Australia. Under the RIWI Act, it is a requirement for all artesian wells/bores and non artesian wells within proclaimed groundwater areas to be licensed for their construction (under section 26D) and the taking of water (under section 5C).

The EPA has provided guidance to Government and industry, through the Environmental Protection *Bulletin No. 15: Hydraulic fracturing of gas reserves*, which outlines the EPA's policy position (a copy is attached to this letter). As stated above, the EPA also has a Memorandum of Understanding with the DMP that outlines referral and administrative processes for significant proposals.

The DMP has commissioned an independent review of its regulatory arrangements in regards to shale, coal seam and tight gas activities in Western Australia¹ and has recently released a response to the review² that outlines the Western Australian Government's approach to the regulation of the unconventional gas industry in the State. The Western Australian Government has adopted a whole of government approach to regulating and managing onshore gas development through the establishment of an interagency working group. Senior representatives from DEC, OEPA and Department of Water are represented on the working group to provide advice on environmental and water issues related to unconventional gas activities. This working groups assists to ensure a coordinated and comprehensive approach is adopted to protect Western Australia's water resources.

The Western Australian Auditor General recently independently reviewed (*Ensuring Compliance with Conditions on Mining*, September 2011) whether the monitoring and enforcement activities of key agencies provide adequate assurance that mining in Western Australia meets the conditions placed on it. While the review acknowledged that the current regulatory framework is robust and functional, it found that monitoring and auditing of conditions does require improvement. In response, the DMP is initiating a reform program to implement best practice environmental regulation to deliver greater certainty, confidence and clarity in DMP's environmental regulatory system.

¹ Dr Tina Hunter, July 2011, Regulation of Shale, Coal Seam and Tight Gas Activities in Western Australia, Bond University.

² Department of Mines and Petroleum, October 2011, Response to Report: 'Regulation of Shale, Coal Seam and Tight Gas Activities in Western Australia'.



Environmental Protection Bulletin No. 15

Hydraulic fracturing of gas reserves

Hydraulic fracturing (also known as fracking) is a process that pumps fluids and other materials under high pressure into wells to open channels in the rock formations, increasing the flow of and allowing extraction of gas reserves.

The EPA notes that:

- there is emerging community interest in relation to hydraulic fracturing (fracking) proposals, however it also notes that there are material differences between Western Australian proposals and those in other jurisdictions;
- a number of trials involving fracking activities have been referred to the EPA for environmental impact assessment;
- in deciding whether to assess a proposal the EPA will determine the significance of the environmental impact; and
- the Department of Mines and Petroleum (DMP) is the lead agency for regulating the development of the gas industry.

Background

Development of "unconventional" gas reserves is expanding globally to meet the world's energy needs. In addition to offshore gas reserves, unconventional gas reserves can also be found onshore, trapped in underground geological formations. Although previously difficult to extract, technological developments in the past 30 years in horizontal drilling and hydraulic fracturing have made these reserves accessible and commercially viable.

Fracking (also technically known as hydraulic fracture stimulation) is a process that uses fluids and other materials that are pumped under high pressure into wells to open channels in the rock formations, increasing the flow of and allowing extraction of gas reserves. 'Shale', 'tight' and 'coal seam' gas are terms used to describe unconventional gas obtained from coal seams and permeable rock formations such as tight sands (sandstones) and shale.

On present indications, unconventional gas and particularly shale gas is likely to be an important part of Western Australia's energy future and there is likely to be an increasing number of unconventional gas projects being developed. The EPA has recently received a number of 'proof of concept' (or trials) referrals for projects involving fracking.

Unconventional gas resources

According to the Department of Mines and Petroleum (DMP), Western Australia has abundant shale and tight gas which differs from the coal seam gas resources being targeted in the eastern States and in the United States. The principal difference is that shale and tight gas resources are typically located more than 2,000 metres below the surface, whereas coal seam gas is generally found between 600-1,000 metres below the surface.



EPB No. 15 Hydraulic fracturing of gas reserves

An assessment of world shale gas resources by the United States Energy Information Agency has estimated that Western Australia holds the world's fifth largest reserves of shale gas in the Canning and Perth basins, representing about twice Western Australia's offshore gas reserves. It is estimated that Western Australia's unconventional gas reserves could provide enough energy to power a city of one million people for more than 5000 years.

Potential environmental impacts

The EPA acknowledges there is community interest about fracking. Some of this interest has arisen from reported adverse impacts associated with gas extraction projects in New South Wales, Queensland, and the United States.

Potential risks and impacts associated with fracking and unconventional gas development projects may include:

- water use;
- storage and disposal of produced water;
- potential chemical contamination of groundwater and surface waters;
- disruption to aquifer connectivity;
- fugitive greenhouse gas emissions;
- changes to land use and associated infrastructure development; and
- clearing of native vegetation.

The EPA considers that avoidance and mitigation of environmental risks and impacts and best practice management is important for projects where fracking is used. A significant separation between freshwater aquifers and target gas reserves will help limit the opportunity for chemical contamination of groundwater aquifers with fracking fluid. Ensuring cement casings meet best practice industry standards and maintaining well integrity will also help to reduce the future risk of blow-outs and potential impacts to groundwater and surface water systems. Adequate contingency plans are important in this regard.

The EPA also recognises that impacts associated with the full scale production of unconventional gas reserves need to be better understood in Western Australia. Broader cumulative impacts to the environment and communities from associated infrastructure such as gas processing hubs, pipelines, related infrastructure together with land use changes and access also need to be considered as projects progress past trial stages.

The EPA also considers that community confidence about the effective management of environmental impacts and risks associated with this industry is best achieved through open and transparent regulatory processes.

Regulation and assessment

In Western Australia, the DMP is the lead agency responsible for the regulation of unconventional gas activities. Shale, tight and coal seam gas are regulated using a similar process to conventional oil and gas activities under the *Petroleum and Geothermal Energy Resources Act 1967*, *Petroleum Pipelines Act 1969*, and the Schedule of Onshore Petroleum Exploration and Production Requirements 1991. The EPA notes that DMP is currently reviewing its regulatory arrangements based on best practice and domestic and international experiences to ensure it is well placed to manage the issues associated with this industry. The EPA will maintain a watching brief on the further development of these regulatory arrangements.



EPB No. 15 Hydraulic fracturing of gas reserves

Proponents intending to carry out drilling and fracking operations need to submit a number of applications to DMP, including:

- a drilling application;
- an environmental management plan; and
- a safety management plan.

DMP requires detailed information to be submitted in order to determine the acceptability of a fracturing program including:

- the physical location and size and scale of the fracturing program;
- the hydrogeological systems within the project area – including distances from the nearest aquifer(s);
- the volumes, management and disposal of water used;
- containment structures for extracted water;
- all chemical additives used in fracture fluid, including concentrations and toxicity;
- the integrity of well casings;
- fracture modelling and monitoring of fracking; and
- long term monitoring for determining whether chemical contamination is an issue.

Potential environmental impacts and risks identified for fracking projects will be assessed within DMP's regulatory framework in the first instance.

DMP will refer a proposal to the EPA if an activity is proposed in or within 500 metres of an environmentally sensitive area. DMP will also liaise with the EPA if a proposed activity is within two kilometres of a town site, the coastline or likely to impact a water resource area (including a water reserve, water catchment and groundwater protection area and declared or proposed water supply catchment area).

The EPA will determine whether to assess fracking related projects that are referred to it on a case-by-case basis, in the same manner as for other petroleum and mining proposals. This means that the EPA must make a decision as to whether the proposal is likely to have a significant effect on the environment and whether to assess the proposal, and if so, at what level of assessment. In determining whether a proposal is likely to have a significant effect on the environment the EPA will apply the significance test outlined in its *Environmental Impact Assessment (EIA) Administrative Procedures 2010*. It should be noted that this test includes consideration of the extent to which other statutory decision-making processes meet the EPA's objectives and the principles of EIA.

In recent determinations that the EPA would not assess a series of referred proposals, the EPA formed the view that, as the proposals were small scale 'proof of concept' proposals, they were not likely to have a significant impact on the environment. Further, the EPA considered that any potential impacts could be managed through the implementation of Environmental Management Plans that will be regulated by the Department of Mines and Petroleum.

The EPA will continue to work with DMP to ensure the community and industry has appropriate information and guidance.

For more information, contact:

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