

To: fracking.inquiry@nt.gov.au

Dear Panel

My name is Sue Slater, and I submit the following for your review into the use of unconventional gas and the use of hydraulic fracturing in the Northern Territory.

There have been many inquiries on this and similar subjects both around the world and in Australia in recent times. Virtually all credible (non-political) inquiries have arrived at similar conclusions; in that exploring for and developing gas and oil from unconventional sources (shale) with the use of hydraulic fracturing (fracking) is unlikely to pose any significant risk to groundwater (aquifers) or to human health, providing appropriate robust regulations (including environmental aspects) are in place, which are adhered to and enforced, such that the risk is acceptable and as low as reasonably practical (ALARP).

Below is a summary of some of the recent outcomes of such credible inquiries:

- The Discussion Paper refers to (page 11) the previous work undertaken through the Hawke Reports (2014 and 2015) as well as the 2016 Hunter Report. These should be the building base for the current Panel's work.
- Prior to the Hawke Report 2014, The Australian Council of Learned Academies (ACOLA) Report "Engineering Energy: Unconventional Gas Production A Study of Shale Gas in Australia" 2013, found that with appropriate safeguards in place shale gas (unconventional) with the use of fracking represents no greater risk than conventional gas. Although certain regulatory oversight needs to be maintained and adhered to maintain a risk profile which is acceptable and as low as practical (ALARP).
- The NSW Chief Scientist and Engineer, Professor Mary O'Kane conducted a review of Coal Seam Gas (CSG) and while noting that CSG is not the subject of the panel's inquiry, we believe her findings are pertinent to this Panel's deliberations. On page 7 of her Report (30 Sept 2014) "*There is a perception in some parts of the community that CSG extraction is potentially more damaging and dangerous than other extractive industries. This perception was heightened following the release of the American movie GasLand in 2010. The Review examined this issue in detail and concluded that while the CSG industry has several aspects that need careful attention, as do almost all industries, it is not significantly more likely to be more damaging or dangerous than other extractive industries*". The relevancy is twofold, in that the NSW Chief Scientist and Engineer's Review debunked the hype associated with the movie GasLand, and recognised each extractive industry has its own unique characteristics which must be recognised, managed and regulated appropriately to achieve ALARP.
- The Western Australian Upper House reviewed the issue of fracking, and after two years of examining evidence etc. concluded (Nov 15) that fracking can be carried out safely if regulated appropriately. It found the impact on human health and on the environment was 'negligible' despite widespread concerns about the practice.
- The South Australian (SA) Natural Resources Committee recently completed a two year inquiry into unconventional gas and the use of fracking, and issued its final Report on 30 November 2016. Its key recommendation against its first Term of Reference was that unconventional gas (fracking) is unlikely to have any impact on groundwater (aquifers).
- As mentioned, there have been many inquiries worldwide, but the UK is also very relevant to Australia, as its ownership to mineral rights is similar to Australia. The UK had a very rigorous inquiry carried out by the Royal Society and the Royal Academy of Engineering specifically to do a report on hydraulic fracturing and shale gas. Professor Sir Mark Walport, UK Chief Scientist, gave a speech in Germany in September 2014 predominantly focused on Risk and Innovation, which summed up the findings:

*"There are really three science and engineering concerns about hydraulic fracturing (fracking). The first of these is: will it cause earth tremors? The second is: will you get contamination of the water table? And the third is: will there be fugitive release of the methane gas? (In other words if you leak all the gas then you lose the advantage of it as a fossil fuel). And what the science and the engineering tells you is that this is a drilling technology and no drilling technology is completely risk-free. **But if it is done well, if it is engineered well, if it is governed well, then it is as safe as any other form of drilling, recognising that there is no 'free lunch', there is nothing that is completely risk-free.**"*

He went on to note:

"Those are the engineering concerns, and that's what the Royal Academy of Engineers' report said and actually multiple other reports have all essentially said the same thing. But the public or publics who are protesting, at least in some parts of the world, about fracking are coming at it from a different angle. They're coming at it from the values angle and from the 'my pain, your gain' angle. And so there's a group that dislike fracking because they dislike fossil fuels, there's another group that dislike fracking because they actually just don't like big companies, and then there's a third group who just don't want the inconvenience of having something industrial happening in their back yard." The referenced speech can be found here <http://bit.ly/1CVyur7>

In line with the UK Inquiry and the recommended outcomes, the UK Infrastructure Bill 2014-15, was passed through the UK Parliament, and it, which among other things will permit fracking below 300 meters in the UK.

It is on this basis that I urge the Panel to adopt a factual and evidence-based approach toward assessing the potential risks regarding the exploration for and the development of unconventional gas and oil, and the use of hydraulic fracturing to enhance its production, providing at all times, there is a robust regulatory regime which through strong enforcement enables the risk to be reduced to be ALARP. In the current domestic gas climate governments should be promoting exploration for gas, not putting additional roadblocks in the way of an already robustly governed industry.

I have also attached an issue of a monthly newsletter that I prepare "Tenure Matters" from September 2015 (Issue 19) which discusses some of the previous hydraulic fracturing inquiries. It can be found online also at https://www.rlms.com.au/publication_cat/publications/

Yours sincerely

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Contact details:

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References :

- Royal Society report on fracking in the UK: *Independent report by the Royal Society and Institute of Engineers in the UK re shale gas production and fracking.* <http://royalsociety.org/policy/projects/shale-gas-extraction/report/>
- Australian Council of Learned Academies (ACOLA) "Engineering Energy: Unconventional Gas Production A Study of Shale Gas in Australia" Final Report. <http://www.appea.com.au/wp-content/uploads/2013/07/ACOLA-Final-Report-Engineering-Energy-June-2013.pdf>



Tenure Matters



A column by Sue Slater, Senior Advisor Petroleum, RLMS

Issue No. 19

Welcome back. This month the topic for discussion is hydraulic fracturing. Whilst some of the angst seems to have cooled down at least here in Queensland, it is certainly not the case across the other States. Indeed, despite an impressive number of reviews and studies, which generally come to similar conclusions – basically if the process is regulated appropriately the activity can be safely carried out – the issue refuses to die. If you ‘google’ hydraulic fracturing one of the first, if not the first, result is www.dangersoffracking.com – which has a pretty nifty engaging graphic about what goes in and out of hydraulic fracturing. It is easy to see why people not associated with the industry believe this is a dangerous, unregulated and uncontrolled activity. The fact that it has been occurring for a long time without incident here in Queensland, and is, in fact, probably one of the most regulated activities the sector carries out, is not acknowledged by the “anti-fracking” groups.

Those of us with reasonable memories will recall the period of time around 2010 when it was virtually impossible to get an Environmental Authority approved, at least for exploration, if hydraulic fracturing was included as part of the proposed work program. Notwithstanding decades of hydraulic fracturing in the conventional petroleum space that barely raised an eyebrow, this activity somehow became the harbinger of all sorts of dire consequences to the environment. GasLands the movie, which was released in Australia in November 2010, certainly helped bring the activity into the general population – many of whom would never have heard of the practice before.

The main areas of concern are:

1. The chemicals that are injected with the water
2. The creation of fractures that may interconnect aquifers and cause contamination of groundwater sources
3. The disposal of fracking fluid and associated waste on the surface
4. The impact of water usage for fracking purposes, and more generally
5. Issues associated with potential increased size of a well pad, additional road use, noise etc. from additional trucks and activities on a well site.

Measures have been taken around each of these¹, including among other measures, a listing of all chemicals used in fracking, requirement for 150% of fracc flowback to ensure that all the fluid used in the fracc has been removed from the well, requirements for baseline assessments and ongoing monitoring, risk assessment and so on.

During 2010, we saw the banning of BTEX under the *Environmental Protection Act 1994*, a move made apparently without adequately understanding its pervasive present in our subsurface basins (*Natural Resources and Other Legislation Amendment Act (No. 2) 2010*). Subsequent amendments ensure that this is a standard condition imposed on the environmental authority for a relevant resource activity. The prescribed maximum amounts are stipulated in the *Environmental Protection Regulation 2008*, section 81B.

Early 2011, we also saw some (comparatively) swift additions to the *Petroleum & Gas (Production & Safety) Regulation 2004* to introduce a requirement to notify of the intention to commence hydraulic fracturing activity (regulation 35), to notify of its completion (regulation 35A), and subsequently to submit a report (regulation 46A). The notices were both required to be given to the relevant landowner. Interestingly the notices do not require that the formation or depth of the intended fracking to be stated, which seems a strange omission, since it could be expected that landowners would be quite interested in this piece of information. The report, however, certainly requires that information.

With the introduction of the *Environmental Protection (Greentape Reduction) and Other Legislation Amendment Act 2012* some progress was made when the Standard Conditions for Petroleum Exploration were negotiated.

An Environmental Authority for petroleum exploration issued in 2011 for example, had a common inclusion “*Stimulation activities are not permitted.*” The current standard conditions for petroleum exploration now state:

<p>Stimulation</p> <p>PESCC 35.</p> <p>The petroleum activities must not involve well stimulation activities at a well located within 2 kilometres laterally of a <u>landholder's active groundwater bore</u> and sourced from a formation within 200 metres vertically of the stimulation impact zone.</p> <p>PESCC 36.</p> <p>Prior to undertaking well stimulation activities, written <u>stimulation management procedures</u> must be developed.</p> <hr/> <p>Explanatory note: <i>The stimulation management procedures may incorporate other documents by reference.</i></p> <hr/> <p>PESCC 37.</p> <p>Stimulation activities must not result in:</p> <ul style="list-style-type: none">(a) negative impacts to groundwater quality beyond the stimulation impact zone; or(b) negative impacts to water quality in landholder's active groundwater bore(s) which tap into the target formation; or(c) interconnectivity between the target formation and another aquifer.
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¹ <https://www.ehp.qld.gov.au/management/non-mining/fracking.html>

This represented a significant improvement on the previous situation. And whilst the current framework here in Queensland may not yet be ideal in terms of efficiency, at least the activity has been able to proceed.

Queensland has not, however, been immune to the private members bill push, with the *Protection of Prime Agricultural Land & other Land from Coal Seam Gas Mining Bill 2013* being tabled on 7 June 2013, and failing on 20 March 2014. In the Explanatory Notes, the Bill's primary objective was to prohibit all "coal seam gas and exploration mining activities"² east of the Condamine River from Chinchilla to the New South Wales border and from the longitudinal line running from the Chinchilla Post Office to the coast.

Meanwhile, across the other States, coal seam gas and unconventional gas exploration in general, and hydraulic fracturing in particular, have been the subject of multiple reviews, studies, recommendations and protests. New South Wales in particular has been an active hunting ground.

New South Wales

In December 2010, a moratorium on fracking was put in place in New South Wales pending the completion of an independent review process into hydraulic fracturing and well design standards. The outcome was a new Code of Practice for Fracture stimulation activities³ among other regulatory amendments and codes. By July 2011, New South Wales had in place a ban on the use of BTEX chemicals as additives during coal seam gas drilling, an extended fracking moratorium until 31 December 2011, a regulation requiring a water access licence if extraction of more than 3ML per year is required, a ban on evaporation ponds for coal seam gas water, and new public consultation guidelines. An Agricultural Impact Statement would also be required if there was potential to affect agricultural resources or industries. These measures are broadly similar to those introduced by Queensland.

In 2012, the Green Party called for a moratorium on coal seam gas 'mining' following the spill at the Pilliga State Forest. This may⁴ be the first private member's bill on the issue, but by no means was it to be the last. In the second reading, on 8 March 2012, The Hon. Scot MacDONALD said:

"I speak against the Coal Seam Gas Moratorium Bill 2011, which ranks as one of the most facile, farmmongering and useless bills that I have had the fulsome pleasure to speak against in my 12 months in this place. It does not rely on the truth or the facts. The Government opposes the bill".

The Bills have continued to come thick and fast. Like a water drip wearing down the stone, the relentless drip ultimately has an impact; and given the developments in New South Wales it seems that the Bills don't even have to be successful to cause a policy adjustment. Every bill tabled puts the issue back on the front page, allows the environmental lobby to have copious media coverage commenting and often results in another independent review, study etc. while a government buys some time.

The Chief Scientist & Engineer in New South Wales was directed in February 2013 to conduct yet another comprehensive review of CSG-related activities, focusing on the human health and

² As written, although tortuous language

³ https://www.nsw.gov.au/sites/default/files/csg-fracturestimulation_sd_v01.pdf

⁴ Seems to be the first, but difficult to be certain.

environment impacts. The initial report was presented in July 2013, and the Final Report on 30 September 2014⁵.

More recently, the *Petroleum (Onshore) Amendment (Prohibit Coal Seam Gas) Bill 2015*, a private member's bill was introduced to New South Wales parliament in May 2015. The aim of this bill was to prohibit prospecting for, or the mining of, coal seam gas in New South Wales and to reintroduce the public interest as a ground for certain decisions relating to petroleum titles. This Bill was ultimately defeated.

New South Wales Labour continued with its push to ban CSG and unconventional exploration across large parts of the state with the introduction in September 2015 of the Private Member's Bill, *Coal Seam and Other Unconventional Gas Moratorium Bill 2015*. The Bill required a moratorium on all unconventional gas in New South Wales, and would create permanent no-go zones.

Northern Territory

An anti-fracking rally in the Northern Territory in September 2015 protested plans for drilling and fracking by a number of companies, and called for a fracking ban. This follows the release on 26 February 2015 of the Hawke Report "Report of the Inquiry into Hydraulic Fracturing in the Northern Territory" which found, amongst its six recommendations, there was no justification whatsoever for a moratorium on the "controversial mining practice"⁶. Dr Allan Hawke was appointed as the Commissioner of the Hydraulic Fracturing Inquiry in March 2014. The two key findings of this report are that the environmental risks associated with hydraulic fracturing can be managed effectively subject to the creation of a robust regulatory regime; and the substantive weight of agreed expert opinion leads the inquiry to find that there is no justification whatsoever for the imposition of a moratorium of hydraulic fracturing in the Northern Territory.

Victoria

A hold on approvals for new CSG exploration licences and for hydraulic fracking has been in place since August 2012, and was extended to May 2015. In December 2012, the Victorian Government established the Gas Market Taskforce, chaired by Hon. Peter Reith and industry representatives. The final report of that Taskforce was delivered in November 2013 (sometimes referred to as the Reith Report) which recommended the development of the unconventional gas industry in Victoria, but also recommended that the regulations for unconventional gas exploration and production be strengthened. A formal community consultation process on the report and issues surrounding onshore gas was conducted between April 2014 and July 2015. During the consultation the moratorium on hydraulic fracturing remained in place.

In September 2014, Victoria passed the *Resource Legislation Amendment (BTEX Prohibition and Other Matters) Act 2014*, which imposed a restriction on BTEX compounds in hydraulic fracking activities.

In May 2015 the Victorian Government requested that issues related to the exploration, extraction, production and rehabilitation of onshore unconventional gas be reviewed.⁷ ⁸While the review was underway, a moratorium on new exploration licences, hydraulic fracturing and exploration drilling

⁵ <http://www.chiefscientist.nsw.gov.au/reports/coal-seam-gas-review>

⁶ <http://www.abc.net.au/news/2015-02-26/hydraulic-fracking-gets-go-ahead-in-nt/6266772>

⁷ <http://onshoregas.vic.gov.au/regulation/current-status-and-allowable-activities>

⁸ The report was subsequently tabled in the Victorian parliament in December 2015.

has remained in place. The interim report of the Environment and Planning Committee, chaired by Hon. David Davis, was presented in September 2015⁹.

Tasmania

Tasmania has had a moratorium in place on hydraulic fracturing since 2014, initially for a one year period, but extended in February 2015 for 5 years, until March 2020. A review of hydraulic fracturing was completed in 2015.

Western Australia

In August 2013, the Environment and Public Affairs Committee commenced an inquiry into the implications of hydraulic fracturing for unconventional gas, including reviewing how fracking may impact on current and future land uses, regulation of chemicals used in the process, the use of ground water in the process, and the potential for recycling of produced water. This report was finally tabled on 17 November 2015. Twelve recommendations were made. These included:

- A ban on the use of BTEX during any hydraulic fracturing operations
- The establishment of a body similar to the Queensland GasFields Commission to act as an independent arbiter for land owners and resource companies with respect to land access negotiations for onshore shale gas
- Using Queensland's Land Access Code as a guide to establish a statutory framework for land access agreements
- Formalisation of the policy to publically disclose chemicals in hydraulic fracturing fluids
- Baseline monitoring of aquifers and subsequent publication of the data to be a mandatory condition on all hydraulic fracturing approvals.

Before the finalisation of this report, in July 2015, Western Australia had new regulations in force by 1 July 2015 for the petroleum and geothermal industries. Yet despite this, in August 2015, the Labour Party in Western Australia was supporting calls for a moratorium on hydraulic fracturing.

South Australia

In November 2014, South Australia called for a Parliamentary Inquiry into fracking in the south-east of South Australia (Limestone Coast). The Natural Resources Committee (NRC) was focusing on four key issues:

1. The risk of groundwater contamination
2. The impacts on the landscape
3. The effectiveness of existing legislation and regulation
4. The potential net economic outcomes to the region and the rest of the state.

The interim report was released in November 2015.

In 2015, South Australia has released a fact sheet¹⁰ which spells out that fracking has been occurring for over 45 years since 1969, in more than 700 wells in South Australia with no negative impacts identified. Nevertheless, calls for a blanket ban on hydraulic fracturing continue.

⁹ http://www.parliament.vic.gov.au/images/stories/committees/SCEP/GAS/Report/EPC_58-02_Text_WEB.pdf

¹⁰ <http://www.statedevelopment.sa.gov.au/upload/Fracking/thefactsguide.pdf>

Federal

Bob Katter has twice introduced Bills to Federal parliament, the first in 2012, and then the *Environment Protection and Biodiversity Conservation Amendment (Moratorium on Aquifer Drilling Connected with Coal Seam Gas Extraction) Bill 2013* which would place a two-year moratorium on aquifer drilling for coal seam gas extraction. Then in March 2015, Senator Larissa Waters introduced the *Landholders' Rights to Refuse (Gas and Coal) 2015 Bill* that proposed to make gas or coal mining activities undertaken without prior written authorisation from landholders unlawful, and would ban hydraulic fracturing operations for coal seam gas, shale gas and tight gas, which was referred for inquiry and report in March 2015. This appears to be the second coming of this Bill, with a *Landholders' Right to Refuse (Coal Seam Gas) Bill 2011* having previously been debated.

Summary

While each review has essentially made similar findings and recommendations, the debate on hydraulic fracturing continues. Key fears around impact on water supply, and hence on the agriculture that relies on that water and the health of people who use that water; have not been allayed. Environmental protection groups are very good at using that fear to try to drive change; and politicians seem to be always worried about the next election instead of making good policy decisions.

Despite each State Government tightening the regulations on fracking, and introducing similar measures around BTEX, evaporation dams, protection of agricultural land, and water use – those who oppose the use of hydraulic fracturing will never be satisfied until it is completely banned. If that succeeds they are several steps closer to stopping unconventional (shale gas, tight gas) gas exploration and development which relies on hydraulic fracturing to a much greater extent than the conventional petroleum or coal seam gas developments have to date. The long history of successful implementation of hydraulic fracturing technology counts as nothing.

Surely the answer is not to continually increase regulations until we reach the point where the activity is almost untenable, but to increase education and improve communication so that the current situation does not continue on an endless repeat. Regulation is not being driven by the facts, but by emotions – the resultant uncertainty and sovereign risk will impact on the ability to produce gas from any tight reservoir. What can industry do to stop the apparently never-ending cycle of reviews, moratoriums, increasing regulation, more reviews etc.? Have we done such a poor job of education? Or is the distrust in big corporations and government so entrenched that no-one will ever believe the outcomes of such reviews, or the ability to manage the activity effectively?

I am happy to hear suggestions about topics you would like covered. Feel free to email me at [REDACTED] with the subject heading Tenure Matters.

In the meantime, remember “Tenures make the Project; the Project doesn’t make the Tenures”.

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September 2015