

Submission to Independent Scientific Panel Inquiry into Hydraulic Fracture Stimulation in WA

2 March 2018

From: Peter Robertson

Dear Panel,

I have been involved in the fracking¹ debate in WA for nearly ten years and have been closely involved in fracking proposals and fracking projects in the Mid-west and Kimberley regions of WA during that time.

In that time my main observations are as follows:

1. The legislation which purports to govern and regulate the onshore unconventional gas exploration and production ('fracking') industry in WA is unfit for purpose and would have to be substantially amended, including with third party (public) enforcement rights, before the public could have any confidence in the regulation of the industry. The inadequacies include, crucially,
 - the lack of appropriate legislation in relation to the protection of water sources and water quality – legislation either does not exist at all (in relation to water quality) or is decades out of date (i.e., RIWI Act 1914);
 - the lack of legislation to prevent pollution and contamination - the fracking industry is effectively exempt from pollution control regulations; no license is required and DoWER cannot prosecute companies for pollution incidents;
 - the lack of legislation that protects the rights and interests of impacted communities, landholders and industries;
 - the lack of legislation to protect the conservation estate and critical habitats from incursion and degradation by the industry.
2. The Department of Mines, Industry Regulation and Safety (DMIRS) is entirely unsuitable and unreliable as the body responsible for assessing, approving, monitoring and enforcing compliance in relation to any proposed onshore unconventional gas exploration and production industry. DMIRS is a major advocate for fracking, both within government and the community, and does all it can to (a) facilitate the expansion of the industry; (b) help the industry avoid the full costs and liabilities of its activities, and (c) shield it from proper public scrutiny.
3. DMIRS's industry standard, in relation to protection of the environment and the public, is the discredited '*As low as reasonably practicable*' (ALARP) standard which is designed to avoid/minimise industry costs and prioritises the narrow commercial interests of oil and gas companies ahead of any reliable protection for the environment or the community.
4. DMIRS has systematically misled, or attempted to mislead, the WA public as to the history and record of fracking in WA. For example, it has repeatedly claimed that there have been 'hundreds of fracking operations' in WA when the Department knows full well that all but a handful of those operations involved a totally different and far less risky technology and operation, i.e. shallow wells, low pressures and no patented chemical cocktail.
5. Fracking as currently practised - i.e. drilling for shale or tight gas at depths of thousands of metres and using extremely high pressures and a patented cocktail of chemicals to extract gas - only began in the past few decades in the USA and there have been very few fracking operations in WA (~12) and none, so far, have involved horizontal drilling and fracking.
6. There is a culture of secrecy and cover-ups in relation to the activities of the industry and the Department. For example, of the ~12 fracking operations that have occurred in WA, many have experienced significant problems and failures - within just the first couple of years - that either were not detected by regulators or were not publicly disclosed. This includes the Corybas and Yulleroo wells (see fuller list below). As soon as the public detects and publicises these problems and failures, the Department rushes to claim that it has known about them all along but has had to, or has chosen to, keep them secret. Once exposed, DMIRS does everything it can, on behalf of the industry and individual companies, to minimise and deflect the seriousness of the failure.

¹ For the purposes of this submission 'fracking' refers to the relatively recent practice involving the drilling of multiple interconnected gas wells thousands of metres deep into shale and tight geological formations and the use of water at extremely high pressures combined with a patented cocktail of chemicals to extract methane. It includes all the operations that surround this practice including extensive and often destructive seismic testing, the establishment of a network of wells linked with roads and pipelines, the construction of various surface wastewater impoundments, **and the creation of a legacy of potentially thousands of abandoned gas wells.**

7. **The Inquiry should obtain and make public a full, up-to-date, truthful and independently-verifiable report on the problems and failures that have already occurred at onshore unconventional gas operations in WA:**
- Whicher Range 5 - near Busselton; 0.5 million litres of diesel pumped into the well;
 - Corybas 1 – near Dongara; gas leak at well detected and reported by community;
 - Yulleroo 3 – Kimberley; waste water pond overflowed;
 - Yulleroo 2 – Kimberley; gas leak at well detected and reported by community. [DMIRS attempted to blame the community for the leak and launched a police investigation, demonstrating that as far as DMIRS is concerned ‘compliance enforcement’ means targeting concerned members of the public while companies, if investigated at all, usually get off scot-free];
 - Warro 3 & 4 – in gazetted Mid-west National Park; abandoned after hitting high pressure artesian aquifer;
 - Woodada – near Eneabba; located in Lake Logue Nature Reserve within 500m of lake with no environmental impact assessment;
 - Yardarino 1 – near Dongara; remains listed as a contaminated site after legal battle by landowner lasting years;
 - Arrowsmith 2 – seismic lines bulldozed through Beekeepers Nature Reserve with inadequate environmental impact assessment;
 - Drover 01 – near Greenhead. See below discussion of fiasco at this well site involving public drinking water supply borefield and abandoned well.
8. Only public scrutiny has exposed the risks and actual failures of the onshore unconventional gas industry in WA. For example, it was only as a result of public scrutiny that the serious risks of the proposed Drover 01 frack well on the edge of the Mt Lesueur National Park were exposed and the fracking operation cancelled. Those risks, which were either unknown to or covered up by other government agencies such as the EPA and DoWER, included the proximity of the Drover well to a gazetted public drinking water supply borefield (Mt Peron) and its proximity to an abandoned well (Gairdner) that could easily have provided a pathway for methane gas and contaminated water to escape and lead to aquifer contamination. No information about these risks was made public at the relevant time.
9. If the fracking industry were to develop to the scale envisaged by the industry’s promoters, including DMIRS, regions like the Kimberley would see literally thousands of gas wells spread across hundreds of square kilometres – all connected by roads and pipelines². This would have devastating impacts on water resources and groundwater dependent ecosystems; transform the region’s globally-significant natural and cultural landscapes into a vast industrial site, and create a monitoring and compliance task that is far, far beyond the capacity of any current WA government agency or existing regulatory resources.
10. In order to minimise costs, the industry, with the active support of DMIRS, has failed to adopt world’s best practice in well design/location, construction and decommissioning. For example,

Sustained Casing Pressure (SCP) testing

- In Alberta all wells drilled and cased are tested for SCP within 60 days of rig release and prior to abandonment;
- Positive SCP and gas flow rates > 300 m³/d or stabilised pressure build > 9.8 kPa/m to the depth of the surface casing shoe must be repaired immediately;
- Surface casing vent is left open to ensure pressure does not build up against the surface casing shoe and to allow for ongoing SCP monitoring.

Why has SCP testing, for example, not been adopted in WA? Because companies, with DMIRS support, want to be able to, (a) minimise costs, and (b) walk away from wells without any risk of being held to account for well failures and resulting impacts to the environment and communities.

- **Practices such as universal SCP testing and other stringent safety and risk mitigation requirements ought to have been mandatory with the full costs borne by companies involved.**

² According to the Frogtech report (2013) to the Australian Council of Learned Academies, over 40,000 wells could be drilled and fracked to fully exploit the estimated gas reserves in the Canning basin. The Frogtech paper estimates total water use for the Kimberley/Canning Basin would be 625.8 Gl (625,800,000,000 litres). That is, to use the panel’s preferred measure, 250,000 Olympic swimming pools of water in an arid/seasonally arid environment containing many extremely important and sensitive groundwater-dependent ecosystems. Ref: *Potential Geological Risks Associated with Shale Gas Production in Australia*. Frogtech Pty Ltd. 2013. Table 2, p27.

11. Faults, formation damage and sand in 'cap rock': Despite serious community concerns, wells have been approved by DMIRS and drilled/fracked by companies without adequate data or assessment of the geology to be drilled and the known or potential existence of faults, formation damage and 'faulty' cap rock. Once again, through such cost-avoidance, the commercial interests of companies are prioritised over community and environmental safety.
 - **Detailed and verifiable information on geology including faults, formations and cap rock suitability for each proposed well ought to have been publicly available together with an independently conducted risk assessment based on this information – paid for by the company proposing to undertake the drilling/fracking.**
 12. There is a general paucity of reliable information on hydro-geological conditions - especially in places like the Canning Basin/Kimberley. Despite this, DMIRS and industry maintain a blanket denial, without any substantive proof, of any connectivity between areas to be fracked and aquifers.
 - **Detailed and verifiable information on hydro-geology and connectivity for each proposed well ought to have been publicly available together with an independently conducted risk assessment based on this information – paid for by the company proposing to undertake the drilling/fracking.**
 13. Widely known studies in Australia and overseas indicate that 'fugitive emissions' of methane – a very potent greenhouse gas - are a far more serious problem in fracking than DMIRS or the industry are prepared to admit. Because of the deliberate lack of proper long term monitoring of wells across Australia and elsewhere, quantification of fugitive emissions has been made more difficult.
 - **Long term independent monitoring and quantification of fugitive emissions ought to have been a requirement of any onshore unconventional gas industry. As soon as any leaks were detected, however long after decommissioning, the company involved should have been required to pay in full to have the problem addressed. Alternatively, a fixed, up-front cash bond ought to have been required at commencement of each well to fully cover any long term risk of well failure, water contamination and/or fugitive emissions.**
 14. The oil and gas industry already has an appalling record in, and off, WA, including for example the widespread pollution of Barrow Island (now a contaminated site) by the oil industry; the disastrous Montara oil and gas spill off the WA coast in 2009, and the brutal imposition of oil and gas exploration on the Traditional Owners of Noonkanbah in the Kimberley in the late 1970s/early 1980s. Because of the secrecy maintained by DMIRS and the industry, many other serious incidents are likely to have occurred but not been fully or openly reported.
 15. **CONCLUSION.** It is obvious, from local, national and international experience, that there is no possible way an economically viable and environmentally safe onshore unconventional gas industry can be established in WA. To be environmentally safe would require a level of industry investment and regulatory resourcing that neither government nor industry would be prepared or able to meet. On the other hand, an economically viable industry can only operate if it is able to avoid the costs and liabilities necessary to adequately protect and safeguard the environment, communities and other industries. WA would be far better off economically, environmentally, reputationally and in every other way, by refusing to allow a fracking industry to operate in the state. It is not needed and it cannot be operated with an acceptable level of safety.
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Summary: Things you need in order to assess fracking risk

1. Realistic appraisal of likelihood of surface spills travelling to receptors including accurate head data
2. Core data
3. Gamma ray data
4. Endoscope data
5. Accurate fault maps and location relative to laterals
6. Pressure transient during fracking for modelling
7. Sustained Casing Pressure data
8. Send pressure build up data to US for analysis.

CONCLUSION: Despite the obvious and serious gaps in information and chronic flaws in processes and procedures, fracking has been approved at several sites in WA. The fact that DMIRS and other agencies are prepared to 'tick and flick' approvals in the face of such serious deficiencies indicates how little regard is paid to the environment and community safety when industry pressure is applied. This in turn shows why public confidence and trust in the industry and its' supposed regulators is largely absent.



Frack wells dominate US landscapes in Wyoming and Texas – creating an unmanageable legacy of abandoned wells

AWE - Corrybas Well (leaked gas)

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Corrybas leak sparks alarm

Geraldton Newspapers CLAIRE TYRRELL AND ALEX MCKITTRICK Geraldton Newsagent July 20, 2012, 11:07 am

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Gas bubbling at the surface of a fracking well on The Grange farm south of Dongara has raised new concerns about the environmental safety of the process.

Nearby growers expressed fears about contamination of groundwater supplies when a leak was discovered at AWE's Corrybas wellhead.

Misleading?

- Industry claims that gas fracking has never polluted water!
- This relies on a definition of 'fracking' that *EXCLUDES* well failure, waste disposal, methane migration, and other known causes of pollution.
- DMP also uses this narrow industry definition
- The West Australian has found against community groups on this basis also

environment and getting

Our tight gas activities have the backing of USA expertise, with over one million wells drilled and fraced with no confirmed cases of groundwater contamination.

We now have to ensure we meet every environmental and technical requirement stipulated in our permits. Every aspect of our operations will be heavily monitored.

Buru Energy understands the burden of "getting this right the first time". We will undertake this program in the most appropriate way to ensure the best protection to the environment and the local community.

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