



once mine production gets into full swing. Even if adequate baseline studies of water supplies are required, how can we adequately predict the changes which would occur as a result of drought in our changing climate? This is not an abstract question. I live in Two Rocks and Licences are on offer right on our border here.

## **Water Contamination**

In our local area, the aquifer slated for use is the Yarragadee and studies consistently show that aquifers can be contaminated by fracking

1) with chemical laden water seeping from leaking wells (About 5% of wells leak immediately, 50% leak after 15 years, and 60% leak after 30 years (2.1, 2.2, 2.7, 2.8, 2.9).

2) from contaminated water from the gas source. Again we use examples from the USA because their industry has continued the longest. To site just one example; after gas extraction through shale in Pennsylvania, researches detected levels of methane, ethane and propane in groundwater samples near active fracking sites (2.3, 2.4, 2.5, 2.6).

Flowback fluids contain hazardous chemicals and will also have combined with chemicals naturally existing within the deep shale being fracked. A typical shale gas extraction well can produce water volumes (which will contain a cocktail of added and naturally occurring chemicals) of between 300-4,500 litres daily (2.1). These then must be disposed of safely or recycled.

## **EPBC ACT - Water Trigger**

Shale definitely needs to be added to the 'Water resources - 2013 EPBC Act amendment - Water trigger (3). As stated in the Amendment (2013) the Water Trigger "does not apply to shale gas. The amendments to the EPBC Act build on the objectives of the National Partnership Agreement on Coal Seam Gas and Large Coal Mining (NPA). This requirement should definitely be included in the panel's findings.

I am concerned that in remote areas with minimal ongoing consistent oversight, the dangers to water will not realistically be mitigated long-term, given the stress on policing the regulatory framework (Department of Mining and Petroleum Inspectors) under such vast distances and remoteness (given fluctuating funding from changing governments, large distances to be covered by Inspectors and 1,000's of wells to keep track of)? Even with adequate base-line studies in place it is hard to imagine how the follow-up over a period of up to 25 years will be regulated in a consistent manner. I have worked in remote areas and am well aware of the haphazard nature in which much work is done when there is minimal or no oversight. By the time something comes to light, if it does, it is often too late or too costly to remedy.

In closing, unlike mining for gold or iron ore, the mining of gas involves practices which can have insidious and long term impacts to the detriment of wide areas of our land. I do not believe it is appropriate to take these chances. The Inquiry Panel should advise a legislated ban of this practice in this state.

Thank you,  
Rebecca Jennings

## REFERENCES

- 1.1 <https://www.theguardian.com/environment/2014/feb/05/fracking-water-america-drought-oil-gas>
- 1.2 <https://www.theguardian.com/environment/2013/aug/11/texas-tragedy-ample-oil-no-water>
- 2.1 An industry paper in Oilfield Review 2003, published by Schlumberger Brufatto, C. (2003). From mud to cement - Building gas wells. Oilfield Review, 15(3). Retrieved from [http://www.slb.com/resources/publications/industry\\_articles/oilfield\\_review/2003or2003aut06\\_building\\_gas\\_wells.aspx](http://www.slb.com/resources/publications/industry_articles/oilfield_review/2003or2003aut06_building_gas_wells.aspx)  
  
Also referenced in the Fracking Compendium page 47 (re ref : warning from Queensland: [http://www.csfgreenorthwest.org.au/qlds\\_story](http://www.csfgreenorthwest.org.au/qlds_story)) [http://concernedhealthny.org/wp-content/uploads/2016/12/compendium-4.0\\_final\\_11\\_16\\_16Corrected.pdf](http://concernedhealthny.org/wp-content/uploads/2016/12/compendium-4.0_final_11_16_16Corrected.pdf)
- 2.2 Nikiforuk, A. (2014, June 5). Canada's 500,000 leaky energy wells: 'Threat to public' The Tyee. Retrieved from <http://www.thetyee.ca/News/2014/06/05/Canada-Leaky-Energy-Wells>
- 2.3 Lock The Gate Submission to NT Inquiry April 2017 <https://frackinginquiry.nt.gov.au/?a=424035>  
See also: <https://www.youtube.com/watch?v=R8TKwEjU7sw&feature=youtu.be&list=PLHnnuC-2E7-S6sW2215knMKgH0NRPlcgv>
- 2.4 EPA United States (2016): Hydraulic Fracturing for oil and Gas: Impacts from the Hydraulic Fracturing Water Cycle on Drinking Water Resources in the United States. December 2016 <https://www.epa.gov/hfstudy>
- 2.5 Fracking: The evidence, <https://docs.google.com/file/d/0B1cEvov1OlyHdzRBRjk4dEIfbVE/edit?pli=1>
- 2.6 Vengosh et al. 2014 [https://hero.epa.gov/hero/index.cfm/reference/details/reference\\_id/2253172](https://hero.epa.gov/hero/index.cfm/reference/details/reference_id/2253172)
- 2.7 Brufatto et al (2003) cite USA Mineral Management Service data from the Gulf of Mexico indicating, 'By the time a well is 15 years old, there is a 50% probability that it will have measurable gas build up in one or more of its casing annuli
- 2.8 Bill Chameides, "Natural Gas, Hydrofracking and Safety: The Three Faces of Fracking Water," National Geographic, September 20, 2011.
- 2.9 Schlumberger, one of the world's largest companies specialising in fracking, published in its magazine as long ago as 1994: "Older fields will continue to benefit from the expertise of the corrosion engineer and the constant monitoring required to prevent disaster"
- 3 Q & A section: Water resources - 2013 EPBC Act amendment - Water trigger <http://www.environment.gov.au/epbc/what-is-protected/water-resources>