

MY SUBMISSION.

BACKGROUND INFORMATION.

My husband is a farmer who manages a mixed farming business. He owns Melbourne location 3802 Koonah Rd, Badgingarra, east of the Brand highway. It was purchased as crown virgin land in 1960. He has worked hard to make it sustainable for the long-term benefits of the land. We run up to 7700 sheep and 150 cattle. There is also a Poll Merino Stud which we sell over 200 rams a year, most of which are auctioned at an on-property Sale Day, each year. Many years of effort have gone into breeding top quality livestock.

What has motivated me into making a submission?

It is of great importance we continue to have sufficient, good quality water (chemical free) to fill our tanks, and troughs for the stock and household use. Our bore which is 200 Metres in depth supplies water for 90% of our stock and the rest for household use. The water from our bore is sourced from the Yarragadee aquifer which supplies the Perth Metropolitan area. This area contains horticulture, broadacre, agriculture, important wetlands and bushlands. Our water has always been of good quality and reliable up till now.

WHY AM I CONCERNED ABOUT UNCONVENTIONAL GAS MINING?

If our precious underground water resource is contaminated or depleted it will severely impact our ability to produce food or wool in a sustainable way. The highly productive horticultural Mid-West coastal region of West Australia will suffer as a consequence. Besides this, there will be health issues for our surrounding communities.

The Harmful Impacts On The Community are: intimidation, coercion and bullying by UG companies, intolerable noise and light pollution from flaring, traffic and UG infrastructure; contamination and depletion of water in farm bores, rivers bubbling with methane; bores running dry; stock losses associated with pipeline construction and water contamination; costly and time consuming interruptions to farming operations; huge trucks and heavy machinery on small local roads effecting lifestyle; safety and road infrastructure; dust impacts on pasture; increases in weed infestation; industry workers leaving mess from pipeline construction in farm paddocks; workers destroying fences and leaving gates open; properties not able to be sold; credit being denied; mental health impacts resulting from dealing with companies and the impacts of industry development; and physical health symptoms including respiratory ailments, headaches, rashes, nausea and vomiting plus nose, throat and eye irritations.

These impacts will affect all facets of life and make living situations untenable.

I am concerned for not only me and my husband, but my children and grandchildren. I do not want what is happening in other parts of the world to happen to us once gas/oil production gets under way.

https://www.youtube.com/watch?v=4OG9JkzB_3M - Megan's story

Our water source will deplete when the Mining Company drills for wells. (Already the Government is implying they need to look for more sources of water to cater for the population and are they are trying to cut back on water licences). There will be highly likely water, soil

erosion and groundwater contamination from re-injection of untreated wastewater on our farmland from wells, ponds and roads.

The underground well casings will be affected in time by corrosion as is evident by our concrete tanks around our property. There will be loss of large areas of farmland for well ponds, pipelines and roads. (We have undulating land and already seven major floods from storms in years 1983,1984,1986,1989 1999,2006,2012 causing major erosion problems to our land).

What will happen if there are sizeable wastewater ponds around here? There will be migration of gas and toxic substances into ground water from fracking induced pathways washing down the waterways. This will create health problems on our property from toxic waste and gas emissions.

Not only will there be considerable noise caused by gas flares, there will be methane gases coming from the flare, polluting the atmosphere, soil and water. There will also be the noise and air pollution from trucks, drill-rigs and machinery.

[http://www.lockthegate.org.au/about shale and tight gas](http://www.lockthegate.org.au/about_shale_and_tight_gas)

[http://www.lockthegate.org.au/our films](http://www.lockthegate.org.au/our_films)

<https://vimeo.com/144454427> - Julie's Story

Julie lives almost on our doorstep – we don't want that happening here.

There are so many different angles about which we have reason to worry:

IMPACTS ON AREA:

- Unconventional gas production is highly invasive. While conventional gas production generally requires single wells, shale and tight gas-fields involve the industrialisation of entire landscapes as hundreds or even thousands of closely spaced gas wells are required to extract commercially viable quantities of gas. Gas-fields also require vast networks of access roads, gas pipelines, processing plants, compressor stations, and wastewater holding dams and treatment plants.
- Valuable agricultural and horticultural land is lost i.e. Tagasate, Perennials.
- Native forests and wild life are impacted. i.e. kangaroos, goannas, emus, echidnas, rabbits, foxes
- The presence of mining in the area will reduce surrounding land values. Experience elsewhere in Australia has shown that land owners have been refused bank finance due to uncertainty of the asset caused by the presence of wells on the property.

<http://www.aph.gov.au/DocumentStore.ashx?id=5bfff958-7e81-41e7-94d3-c1f463ce8c26>

<https://www.theguardian.com/environment/2016/sep/30/commonwealth-bank-coal-seam-gas-makes-property-unacceptable-as-loan-security>

- Refusal by insurance companies to cover damage caused by mining activities and farmers are also being advised that they themselves may be responsible for damage to other owner's property if caused by fracking and drilling on their property. If the mining companies, as has happened, refuse to cover or accept liability, **if the process is so safe and free of risks, why wouldn't they provide cover?**
- The mining companies are notoriously under-insured.

<http://www.farmonline.com.au/story/3365648/csg-too-riskyfor-insurers/>

<http://www.chiefscientist.nsw.gov.au/latest-news/chief-scientist-and-engineer-calls-for-tougher-insurance-regime-for-csg-industry>

UNCONVENTIONAL GAS TECHNIQUES:

- Involve using invasive “unconventional” methods to crack rocks that hold methane gas deep underground.
- Techniques such as horizontal drilling and hydraulic fracturing (fracking) are used to extract methane from the shale and sandstone rocks.
- Fracking involves pumping large volumes of water, chemicals, radioactive tracers and sand into the ground at high pressure to release gas.
- Tight gas may also require acidation, which involves pumping acids into the well to dissolve the cements between the rocks. These new more modern fracking techniques have only been used since the 1900’s and require vast quantities of water and chemicals, much higher pressures and riskier horizontal drilling techniques.

[https://d3n8a8pro7vhmx.cloudfront.net/lockthegate/pages/2192/attachments/original/1471410056/Shale and tight gas fact sheet updated July2016.pdf?1471410056](https://d3n8a8pro7vhmx.cloudfront.net/lockthegate/pages/2192/attachments/original/1471410056/Shale_and_tight_gas_fact_sheet_updated_July2016.pdf?1471410056)

A Fractured State Trailer: <https://vimeo.com/188616528>

WATER USE:

Fracking is an extremely water-intensive practice.

- A single shale gas frack can use 11.34 million litres of water plus chemicals.
- Wells are often fracked on multiple occasions, sometimes up to ten times, multiplying overall water use.
- Some of the fluid returns to the surface as flowback, but most stays underground and is never recovered - estimates suggest 70% or more remains underground.

https://www.water.wa.gov.au/_data/assets/pdf_file/0020/7841/109620.pdf

WASTEWATER:

- Wastewater from gas operations includes flowback from fracking and “produced” water that is present in the source rock. This produced water is brought to the surface during gas production. The wastewater may contain heavy metals, salts, radioactive materials and volatile organic compounds.
- The massive volumes of wastewater produced may be stored in large ponds, partially treated and released into waterways or re-injected back underground - a process that can lead to earth tremors and earthquakes.

The growing evidence of actual harm, and the potential environment and health risks from shale gas development, has now resulted in decisive action from Governments across the globe to halt the expansion of this industry. Internationally jurisdictions with some form of ban or moratorium in place include Scotland, Wales, Germany, Bulgaria, Romania, the Netherlands, Northern Ireland, Wales, the Czech Republic, Luxemburg, and France as well as US States of New York, Maryland, Florida and Vermont, and the Canadian provinces of New Brunswick, Newfoundland, Nova Scotia and Quebec.

<https://keeptapwatersafe.org/global-bans-on-fracking/>

HEALTH:

Numerous reports on the impact of fracking on health of both humans and animals are available:

IMPACTS OF GAS DRILLING ON HUMAN AND ANIMAL HEALTH Scientific Solutions Vo 22(1) 51-77,2012 by Michelle Bamberger and Robert e. Oswald
<https://www.ncbi.nlm.nih.gov/pubmed/22446060>

Concerned Health Professionals of NY:

Shale Gas Exploration and production: Potential Health and Environmental Impacts -
<http://concernedhealthny.org/wp-content/uploads/2013/10/Dyrszka-90613-17-slides-Eng-Health-Shale-Gas-Exploration-and-Production-Health-Impacts.pdf>

Facts on Fracking – What Healthcare providers need to know:

<http://concernedhealthny.org/wp-content/uploads/2013/10/ANHE-Fact-on-Fracking-Providers.pdf>

Toxic & Dirty Secrets – the Truth about fracking and your Family's Health:

http://www.ceh.org/legacy/storage/documents/Fracking/fracking_final-low-1.pdf

2015 Environmental Report for Los Angeles County on Air Pollution Impacts on Infants and Children:

<https://www.ioes.ucla.edu/project/2015-environmental-report-card-for-los-angeles-county/>

Research into the health of families living in the gas fields of Queensland has been carried out by

GP Dr GERALYN Mc Carron in 2015 and again in 2018. Dr McCarron is particularly concerned about the lack of investigation into health statistics in Queensland. The link to her presentation by video to the Australian Tribunal into the human rights Impacts from Unconventional Gas is below:

https://www.youtube.com/watch?time_continue=55&v=4FRFuHWPCtg

<https://independentaustralia.net/life/life-display/csg-is-destroying-the-iconic-darling-downs-along-with-residents-health,7792>

IMPACTS ON AGRICULTURE:

Threat to agriculture in WA. Across Western Australia large areas of highly productive farmland are under threat from Unconventional Gas mining. This activity has the potential to severely disrupt virtually every aspect of agricultural production and potentially even remove the land from production.

Although this study below is into the impact of CSG extraction on Agro-economic returns in Queensland, this is still highly relevant to Shale Gas extraction in Western Australia:

O. Marinoni, J. Navarro Garcia, 2016 A novel model to estimate the impact of Coal Seam Gas extraction on Agro-economic returns, Land Use Policy. Volume 59, 31 December 2016, Pages 351-365,

https://gisera.org.au/wp-content/uploads/2017/02/Marinoni_2016_LUP_351-365_CSG_ImpactSystem.pdf

Landholders will lose millions of dollars every year by hosting unconventional onshore Gas-fields. A 2016 CSIRO report found the alienation of productive farmland for CSG infrastructure in Queensland resulted in losses in gross economic returns of up to 10.9%. The total losses to gross revenues varied between 41.32M AND \$3.2M PER PROPERTY AND AVERAGED \$2.17 MILLION. This is based solely on reduction in land area and did not attempt to qualify losses resulting from disruption to operations, dust generation, spills and leaks of wastewater or the spread of weeds. Therefore, total losses to landholders will undoubtedly be far higher.

The impact on the land and the industrialisation unconventional gas production creates is neatly demonstrated in a series of 'Before and After' photos of various forest and agricultural areas in Queensland.

https://www.csqfreenorthwest.org.au/qlds_story

Excerpts from the Compendium of Scientific, medical and media findings demonstrate risks and harms of fracking 19 Jan 2018, particularly on water contamination:

<http://www.psr.org/assets/pdfs/fracking-compendium-5-water-excerpt.pdf>

The biggest impact on land is the transformation of entire regions of beautiful productive land into an industrial landscape. The industry claims that new technologies involving multiple lateral drillings will reduce this footprint, but this is yet to be determined. The background paper for the WA inquiry claims that the footprint for unconventional gas will have a smaller footprint than coal seam gas. It is not appropriate to assume that yet. Australia's former and present Chief Scientists, Professor Chubb and Dr Finkel, have both admitted that Australia's unconventional shale gas industry will have a larger footprint and require considerably more water than CSG. They have highlighted the absolute necessity to undertake detailed studies in an effort to understand the complications that could arise from this industry

<http://www.chiefscientist.gov.au/wp-content/uploads/shalegas-recommendationsFINAL.pdf>

<https://www.atse.org.au/Documents/submissions/inquiry-unconventional-gas-victoria.pdf>

IMPACTS ON WATER- Aquifers, Ground water and Surface water:

Water and chemical use and wastewater production from unconventional gas mining places WA's vital water resources at risk from contamination and depletion. There are numerous examples of peer-reviewed literature showing serious unconventional gas impacts on groundwater in the U.S.A, regardless of the industry's insistence that there are no impacts. This should be a warning to Western Australia that impacts do occur and are usually found by third parties.

The gas industry claims that because shale and tight gas extraction involves deeper rock layers, they are safer than gas extraction from shallow coal seams. But according to a European Commission Report there is an overall high risk of ground and surface water contamination resulting from fracking.

Aquifers can be contaminated by fracking:

- Through water seeping from leaking wells.

- From faults induced by fracking.
- From surface spills of produced water involved in the fracking process
- Contaminated water from the gas source per se.
- After fracking at each well, the large volumes of hazardous flow back fluid must be stored and disposed of.

Surface water pollution can occur:

- When there are accidental spills of fluids or solids at the surface
- When well blow outs occur.
- Through discharge of insufficiently treated waste water onto land surfaces or into waterways,
- Flowback fluids contain hazardous fracking chemicals as well as naturally toxic substances released from target geological zones:
 - Methane
 - BTEX (benzene toluene, ethylbenzene, xylene)
 - Polycyclic aromatic hydrocarbons (PAHs)
 - Naturally occurring radioactive materials (NORMs)
 - Heavy metals and other volatile organic compounds (VOCs).

Fracking: What's the evidence?:

<https://docs.google.com/file/d/0B1cEvov1OlyHdzRBRjk4dElfbVE/edit?pli=1>

Toxic Chemicals in the Exploration and Production of Gas from Unconventional Sources:

http://www.ntn.org.au/wp/wp-content/uploads/2013/04/UCgas_report-April-2013.pdf

EPA's Study of Hydraulic Fracturing for Oil and Gas and Its Potential Impact on Drinking Water Resources in the United States – December 2016

<https://www.epa.gov/hfstudy>

In the US state of Pennsylvania alone, more than 240 private drinking water wells have been contaminated or have dried up as the result of drilling and fracking operations over a seven-year period. There has been widespread drinking water contamination in 550 water samples throughout the area.

Doctors for the Environment Australia note that 'water and air pollution, water shortages, permanent degradation of productive agricultural land and loss of livelihood and landscape all have mental health consequences for communities living in a gas field.

<https://www.parliament.nsw.gov.au/committees/DBAssets/InquirySubmission/Summary/52431/Submission%200412.pdf>

WHAT IS AT RISK?

Invasive gas mining impacts include:

- Industrialization of whole regions with wells, roads, pipelines and infrastructure.
- Contamination of ground and surface waters with toxic chemicals and methane.

- Loss of Agricultural land and reductions in property values which means our property won't be worth anything as nobody will want to come on land that is contaminated or has water issues. The land will be barren and useless. No crops, no food,
- Release of hazardous air pollutants from venting, flaring and wastewater evaporation.
- Depletion of water resources from well dewatering and use in fracking.
- Substantial greenhouse emissions from methane leakage.
- Serious health effects experienced in communities living near gas fields like in USA & Queensland.
- Fragmentation and destruction of native forests and critical wildlife habitat for rabbits, foxes, kangaroos, echidnas, goannas, long tailed goannas, emus.
- Reduced quality of life for rural residents of rural life because of contaminated or depleted water supplies.
- *This will cause issues including privacy, freedom, more stress, birth defects for both humans and livestock, concerns with health issues, inability to sell property.*
- Obtaining sufficient clean bottled water to survive and having to cart water for all our livestock.
- Increased threat of seismic activity from fracking and wastewater re-injection.
- Invasive on our agricultural landscape.

On April 28th 2017 the *Countryman* reads "Dandaragan has been earmarked as a possible agricultural hotspot under the WA Government's \$40 million Water for Food Program". But it is also covered by a gas exploration permit, held by Warro-field operators, Whitebark Energy, formerly Transerv. If there is such a large opportunity for food investment in a relatively safe and clean environment, how can it be considered suitable for also drilling for gas and oil?

Why do we want to let gas exploration companies risk contamination of our precious water? The evidence is there - gas contaminates water, together with other side effects wherever fracking has taken place for any extended time.

Last year we attended the gas information night at Moora with John Fenton from Wyoming, U.S.A as the guest speaker. He gave a brilliant testimony of his own personal experience with the unconventional fracking of gas. He is a farmer/rancher on what was a productive piece of land, similar to our Dandaragan area. It had good quality water and grazed 400 cows on 800 acres of land. Now he can only run 100 cows on the dry barren wasteland and they have to truck the water in for stock and drinking due to his water being contaminated. Besides this, he and his family have health issues that have arisen: lesions developing over his body and facial hair falling out. If John Fenton wasn't so badly affected by the unconventional gas. why did he bother warning Australians about what would happen if the gas companies had the right to take over like they did in Wyoming, United States of America?

We are members of the Dandaragan GroundWater Protection Group. We did a community survey to determine who was in favour of fracking in the Dandaragan area - only 6% of respondents were supporting fracking. They were also asked if they wanted to declare their community Gas-field Free. When a community declares itself Gas-field Free it is making a powerful statement to the gas industry that the industry does not have a social licence to operate in the community.

Representing a large sector of the rural community, the Country Women's Association of West Australia passed a motion at its 2017 Annual Conference calling for an end to fracking and unconventional Gas fields in W.A. A similar motion was passed by the NSW branch of the C.W.A earlier in the year.

My main concern is that if our water supply resources are depleted, it will severely result in a reduction in food supply.

My second main concern is the physical and mental side effects.

What about our families, our Grand-children? We can't all live in the city. If Rural families are forced to leave their land because of heavy-hand tactics from Oil and Gas companies, many more people from rural areas will be forced to work and live in Perth. Not all people can live in Perth. It would place extra strain on everything from infrastructure to living arrangements. *It makes more sense to de-centralise people to the country with real work and real jobs which will retain our natural resources, not destroy them.*

Evidence has shown in other places of the world that this can and does happen. Prevention, is better than cure.

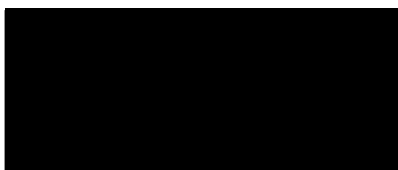
Allow us to stand up for our land and human rights, before it is too late.

I ask Mr Mc Gowan to call for a Bill to stop all shale, tight gas drilling and fracking. Fracking operations in these regions threaten ground water resources that are vital to Perth Metro area as well as the Mid-West region. Indirectly, it will affect all because of lack of sustainable food supplies to the city. We can't eat Gas!

Hoping you may have a listening ear and eyes to read and understand our plight.

OUR CONCERN IS REAL.

Deanna Wilkinson



10/03/2018