

WA Independent Scientific Panel Inquiry into
Hydraulic Fracture Stimulation in Western Australia 2017-18 Submission
February 19, 2018

Dear Dr Hatton and Panel,

My name is Natalie Innes and I am a concerned member of the Western Australian public. I am strongly opposed to hydraulic fracture stimulation and believe there should be a permanent ban placed over the entirety of Western Australia. I am concerned about Western Australia's ground and surface water; air and land pollution; climate change; agriculture; public health; wildlife welfare; chemical use; well integrity and failure; land rights; property values; industrialisation; and gas company fallacies.

In the past year, I have met hundreds of residents of Western Australia, from both city and country, who are all opposed to, and concerned about hydraulic fracture stimulation in Western Australia. These people make up only a small percentage of a community who do not want hydraulic fracture activities on their doorstep, nor anywhere in their state.

As a concerned citizen, I have joined together with other community members in a volunteer support group of Lock the Gate. As a group we partook in a survey of residents of The Vines and found a staggering 98.8% of people surveyed also want a total ban on hydraulic fracture stimulation. We have, as a community, declared The Vines 'Gasfield Free'.

I have also helped two other groups in Western Australia partake in the same survey in Caversham and Moora. These localities also have very high percentages supporting total ban. In total in Western Australia there are now 19 'Gasfield Free Communities'. These are Brunswick, Carnamah, Caversham East, Cervantes, Chittering, Dandaragan, Exmouth, Forest Grove, Greenhead, Greenough, Irwin, Jurien, Leeman, Moora, North Boyanup, Quedjinup, Stirling Estate, Stratham, and The Vines.

These same surveys were conducted in New South Wales and Victoria with the states now boasting more than 450 Gasfield Free Communities. Although these community declarations have no legal power they show beyond a doubt the will of the Australian public, and that hydraulic fracture stimulation companies do not have social licence.

There is a plethora of scientific evidence in peer-reviewed, published reports irrefutably demonstrating the extensive, negative consequences that hydraulic fracture stimulation will have on Western Australia.

Hydraulic fracture stimulation has a ban in place in Argentina, Bulgaria, France, Germany, Romania, Scotland, South Africa, Spain, Switzerland, The Czech Republic, Uruguay and Wales as well as the US states of California, Colorado, Hawaii, Maryland, New Mexico, New York, Ohio, Pennsylvania, Texas and Vermont and the Canadian Provinces of New Brunswick, Newfoundland, Nova Scotia and Quebec.

It is now time for Western Australia to follow their responsible example for the protection of our state's, and our children's, futures.

Key Points

The impacts arising directly from hydraulic fracture stimulation include: pollution, health, agriculture, well integrity and failure, and gas company credibility. Information on each of these topics is detailed below.

Pollution

Hydraulic Fracture Stimulation directly causes pollution to water, air and land. New evidence is emerging each year linking hydraulic fracture stimulation to harmful levels of smog and toxic air contaminants, noxious drinking water, and unfarmable land.

The rapid growth of hydraulic fracture stimulation in both new and existing gas operation areas, has led to an increase in fracture specific contamination, including silica sand, fracturing chemicals, flowback wastewater, carbon pollution, and methane pollution. This methane will warm the climate at least 80 times more than carbon dioxide in a 20-year period.

Groundwater contamination is seen in every region where hydraulic fracture stimulation has occurred. Extensive documentation can be found on the internet describing the complete and irreversible contamination of potable water sources worldwide. While the evidence mounts, many countries have decided to ban hydraulic fracture stimulation to cease or prevent pollution. Reports released in late 2016 by the US Environmental Protection Agency (EPA) concluded that hydraulic fracture stimulation has the capability of contaminating groundwater at each stage of the fracturing process. This report was based on the review of more than 1200 scientific sources, feedback from an independent peer review, and 13 new peer-reviewed reports conducted as part of the study.

Contamination of groundwater has been evident in Wyoming after a comprehensive analysis of data was evaluated to show groundwater impacts. Impact on safety of drinking water was noted after injection of hydraulic fracture fluids through groundwater sources, after fracturing fluids were spilled into water sources, and after isolation measures failed. Monitoring wells installed by US EPA have detected organic compounds used in hydraulic fracture and diesel range compounds, plus anomalies in major ion concentrations in water.

Air contaminants have been identified in 15 different hydraulic fracturing processes and sources. Included in these are the drilling process, wastewater, and condensate tanks. Authors Srebotnjak and Rotkin-Ellman conclude "there is legitimate concern that local air pollution may produce adverse effects in individuals who live near the high emitting site or processes." These processes cause ground-level ozone to form, consisting of nitrogen oxides and volatile organic compounds.

Air quality impacts have been studied in the Marcellus Shale region of Pennsylvania. Results included diesel emissions from truck traffic, well-drilling, hydraulic fracturing, gas production, on-site combustion, and compressor stations. The National Institute for Occupational Safety and Health expressed concern at diesel particulate levels measured at 11 hydraulic fracturing sites in Colorado, Arkansas, Pennsylvania, Texas, and North Dakota.

An investigation undertaken at Duke University following hydraulic fracturing spills in North Dakota has found radium poisoning in soil and water. "Soil at the spill sites was contaminated with radium, a naturally occurring radioactive element found in brines, which chemically attached to the soil after the spill water was released. Soil samples collected downstream from spill sites contained higher

levels of radioactivity than soil at the spill sites themselves. This suggests that radium builds up in the soil as the spilled brine flows through the environment.” Duke University, 2016, Contamination in North Dakota linked to fracking spills: Metals, salts and radioactivity in brine-laden wastewater years later, *ScienceDaily*, www.sciencedaily.com/releases/2016/04/160427150617.htm

Health

There have now been more than 700 studies performed in the US to assess the risk upon health from hydraulic fracture chemicals. More than 80% of these studies document risk or actual harm. Those at risk are the gas industry workers, families living near hydraulic fracture wells, and entire regions containing hydraulic fracture stimulation gasfields.

Drinking water containing hydraulic fracture chemicals has been tested, and the results have found chemicals causing problems, such as eye irritation, nervous system problems and cancer. People who drank this water have suffered headaches, nausea, disorientation, light-headedness, fainting, neurological problems, skin rashes and miscarriages. Others, who have stopped drinking the water but still bathe in it have these same problems. Animals who drank this water have died.

While contaminated water is easy to avoid, air pollution is not. Research has linked hydraulic fracture pollution to dangerous levels of smog and toxic air contaminants, including methane, nitrogen oxides and volatile organic compounds. Evidence is mounting for a range of health problems caused by this contaminated air. These health impacts include, but are not limited to, eye, nose, mouth, and throat irritation, respiratory problems, birth defects, blood disorders, cancer, nervous system disorders, and premature death.

Diesel emissions are released from the combustion engines of heavy trucks and machinery used during all preparation of, and hydraulic fracturing of wells. Among the hundreds of chemicals found in these exhaust fumes are diesel soot particles. These particles can lodge deep inside lungs, bringing health risks that include asthma attacks, pneumonia, cardiopulmonary disease (including heart attack and stroke), respiratory disease, adverse birth outcomes, cancer, and premature death.

Gases released into the air from the process of hydraulic fracture stimulation include hydrogen sulphide, benzene, toluene, ethylbenzene, xylene, formaldehyde, and many other toxic hydrocarbons. Hydrogen sulphide is an explosive gas that is damaging to the central nervous system and can cause death in large doses. BTEX and other hydrocarbons lead to health issues including, eye, nose, mouth, and throat irritations, light-headedness, disorientation, fatigue, aggravated asthma, respiratory conditions, blood disorders, bone marrow damage, anaemia, harm to developing foetus, immune system disorders, and cancer (including leukemia and non-Hodgkin's lymphoma).

Those who do not live in close proximity of hydraulic fracture wells are still prone to health impacts, such as, coughs, shortness of breath, airway and lung inflammation, decreased lung function, worsening of asthma and other respiratory diseases, cardiac arrhythmia, increased risk of heart disease, heart attacks, stroke, and premature death. Studies have also found chemical contamination in hydraulic fracture regions that cause health problems with the heart, liver, kidney, endocrine system, immune system, reproductive system, gastrointestinal system and auditory system.

Agriculture

These following stories represent a very small snapshot of the agricultural devastation that has occurred in Pennsylvania in the last decade. The reality of destroyed agriculture in the US is monumental, with many cases here in Australia being reported each year.

Bradford County

- 1.) Roslyn and David Bohlander had gas wells fracked on their farm. They discovered water contamination after their cows refused to drink the water. 'We have two (water) wells on the farm. We had a detailed baseline water test done on both before any of the gas activity happened in our area. The well for the barn and original farmhouse was so contaminated with methane they thought it would explode so the well pump was disconnected for six months and water was trucked in by the gas companies for the animals, and spring water provided for the humans,' says David. A nearby neighbour of theirs is suffering with barium poisoning, with an immediate neighbour suffering significant hair loss and the death of family pets.
- 2.) Jacqueline Place has also had cows refuse to drink well water on her property. When she noticed her water became 'reddish brown' and 'oily', she contacted Chesapeake and Pennsylvania's DEP. Both tested the water and found methane levels 1,300 to 2,000 times higher than baseline tests. Ten years on her water well remains contaminated.
- 3.) Barbara and Charlie Gerlach have had their property value plummet from nearby agriculture destruction by the gas fracturing. They have witnessed fields of blueberries and acres of sugar maple bulldozed next to their property and are hesitant to make improvements to their own home as their future is uncertain.
- 4.) Carol French, a dairy farmer, wants to warn other who have signed gas leases, thinking the money will bring them financial freedom. The contaminated water on her property has caused her cows to miscarry their calves. Without these calves, she not only misses income from a lack of milk, she also loses the future generations that maintain her farm. As well as facing the possible failure of her family business, her property has dropped in value and her own health has been affected.
- 5.) Pam Judy lived and built her house on a property once owned by her great grandparents, before the gas industry drastically changed the area over recent years. A large compressor station next to the property and more than 35 producing fracturing wells within a mile have brought noise, odour and traffic. Pam, her husband, and their two children often felt tired and had headaches, runny noses, sore throats, and muscle aches before they moved away from their farm.
- 6.) Jodie Simons went into early labour and lost her own child within the first six months of hydraulic fracture on her property. She has also lost five horses, one of her pigs, and some number of pheasants, ducks, chickens, and turkeys. In all, dozens of animals died.
- 7.) Carolyn Knapp has nine gas fracturing wells within two miles of her farm, where she runs an organic dairy. Her husband suffered body rashes while drinking the water on their property. Since he ceased, the rashes have healed. Knapp's dairy cows suffered these same rashes, and have had many miscarried calves.
- 8.) Randy Morse regrets leasing his property to Chesapeake. His beef cattle are unable to drink from his now contaminated brook.
- 9.) Truman and Bonnie Burnett suffered a loss of their groundwater, forest, and fish when tens of thousands of gallons of drilling water that had been stored on a well pad spilled, leaking

downhill and into the Burnett property. This fracturing well is still producing today despite this spill. Truman Burnett died in October.

- 10.) Tim Pepper required fencing to surround an 80sqft stream bed on his property to protect his cattle after a jelly-like substance formed on the surface.

Tioga County

- 1) Carol and Don Johnson suffered financial losses when flowback fluid leaked from an impoundment pit onto their cattle grazing pasture. 28 head of cattle were quarantined and held from the food chain from six months to two years. Eight of 11 calves born of quarantined cows died at birth. Finally, their property was littered with large rocks from drilling and wiring from seismic testing, tangled in hay bales.
- 2) Leo Shanlay lives just outside the voluntary evacuation zone set up by Shell due to severe methane leaks at one hydraulic fracture well pad. He has been forced to truck in water for his family and livestock.

Washington County

- 1) George and Lisa Zimmerman had baseline testing done on their water a year before 10 hydraulic fracture wells were drilled on their property, the results being 'perfect'. After fracturing began, water tests found arsenic at 2,600 times legal limits, benzene 44 times the legal limit and naphthalene five times federal standards. Soil samples found mercury and selenium above legal limits, as well as ethylbenzene and trichloroethene. The soil and water are permanently contaminated, causing Zimmerman and his family to live in fear of illness. Their property, which they spent \$11 million on building a winery and heirloom tomato business, is now worthless and unsellable.
- 2) Ron Gulla was forced to leave his home after his property was contaminated. His 3-acre pond turned black with sediment forming at the bottom. It took six months for all surrounding vegetation to die. After gravel surrounding his well bore began to bubble, Gulla had the water tested and benzene, toluene, xylene, ethyl-benzene, oxylene and other volatile organic compounds were found, all deadly carcinogens. Soil erosion occurred after mud, mill slag, silt and toxic backflow were dumped on his property.
- 3) Emile Alexander passed away before the problems on his property could be resolved. Investigators determined that the fracture of a new well caused methane to leak through an abandoned well and into the land and aquifer. When it rained Alexander witnessed gas and water bubbling from the ground. The methane levels on the property became so severe monitoring equipment was set up in his house and he was advised to leave the home as it was at risk of exploding.
- 4) Joyce Mitchell owns a 133-acre horse property and regrets signing a land lease agreement with Range Resources. The hydraulic fracture company has used more of her land than was implied, leaving Mitchell feeling disparaged. She describes them as being over-bearing and arrogant. She has requested independent water testing after a constant smell of gas and noxious fumes made her concerned about the safety of her drinking water.
- 5) Emma and Gary Puskarich have lost 90 head of angus cattle. Exasperated, Gary explains, "one thing about these gas company people – they lie. I don't even think they know how to tell the truth. That's like the DEP, I'm down there fighting them over all this contamination. All my stuff out of the basement is ruined (the basement was flooded with sewerage, which the gas company later admitted that they caused). I told them I was going to burn it, and they (the DEP) told me they would have to fine me because, you know, contamination you're not allowed to burn. But, I said, 'they can drain all their stuff down across the road

and ruin your ground, people's water, but that's ok – we're not going to fine them!' Oh, we got into it a lot of times with the DEP... nobody wanted to help. And to this day no one is helping. The DEP is not for giving, they are for the gas companies. I say they get paid off from the gas company, because, what happened here, somebody should have done something."

- 6) Beth Voyles experienced health problems after an impoundment was installed on her property. Ailments include, but are not limited to, rashes, blisters, light-headedness, nose bleeds, and lethargy. Medical testing reported elevated levels of arsenic, benzene, and toluene in her body. She lost farm animals and dogs, with other dogs suffering miscarriage and litters of stillborn pups. Voyles' water well ran dry, a brine spill occurred near her home, sewage odour polluted her home and property from the impoundment and truck traffic became excessive.

Greene County

- 1) George Watson filed civil complaints against five hydraulic fracture companies in 2012, resulting in one conviction. The company was ordered to pay \$12,000, the statutory limit for a civil action before a district judge. Watson claimed he lost 21 cattle on his farm and that at the same time he witnessed hydraulic fracture company Shipman dumping wastewater into Hargus Creek.
- 2) Terry Greenwood was unable to stop hydraulic fracture stimulation occurring on his property, despite all his attempts fighting for the right of veto. It took one month for the well that had supplied him, his pets, and his cattle with clean drinking water for 20 years to be contaminated and undrinkable. In the first year of fracturing, a spill on his property caused ten of 18 calves to be stillborn, and his only bull to become sterile. Terry Greenwood died in 2014.

Bedford County

- 1) Joe and Sandra McDaniel were forced by federal authorities to lease five of their 154-acres to Spectra Energy Corporation. Pre and post drilling water testing show chemical contamination of their spring fed fish pond despite silt fencing and erosion control.
- 2) Angel and Wayne Smith have lost a horse, 3 cows, 12 chickens, and 4 cats, and have had 12 calves stillborn or miscarried. They witnessed their animals die in agony, all due to water contamination from hydraulic fracture stimulation on their land. Methane and arsenic were discovered in their drinking water and they were forced to spend \$11,000 on a water unit to supply safe drinking water for themselves and their animals. There is a compressor station situated on the property causing massive noise pollution. In 2009 this compressor station exploded, spraying the property with oil, ruining their cars and destroying a crop of blueberries that were unable to be sold. The Smiths wanted to leave the farm to their grandchildren, but the property has lost its value.
- 3) Michele Beegle has suffered dangerous health effects as well as losing cows on her farm. She says, "not long after a blow-out in 2009, I was working in the garden when I blacked out. It happened a second time one morning while my youngest daughter was getting ready for school. I was in the bathroom when I fell, I landed in front of the door. It took my daughter five minutes to force the door open, so she could help me." The fainting spells have become more frequent and longer lasting since, forcing her to relinquish her driving license and showering. She has broken all but one rib in the falls. She saw specialists in Altoona, Johnston and Pittsburgh before discovering she has cataplexy, a result of toxic exposure. She

will remain on medication for the rest of her life, placing her at risk of developing Parkinson's disease.

- 4) Darrell Smitsky has 17 Marcellus hydraulic fracture wells within one square mile of his property. Their well was once famous for its taste and quality, but now, water testing indicates serious problems, directly pointing to hydraulic fracture contamination. Smitsky lost goats, fish and plants, and the family suffered skin rashes from showering in the contaminated water.
- 5) Betty Clark's son lost goats and calves after the spring on his farm was fractured through. The water was contaminated with arsenic.

Fayette County

- 1) David and Linda Headley suffered immediate land damage on their property when fracture activities brought trucks, noise, dust, and workers. The cap of a gas tank popped open 150-yards from their house and a gas cloud escaped, big enough to fill a valley. They suffered deforestation, destruction of fruit trees, and a brush fire set from a bulldozer's motor oil, which destroyed ten acres of bush land. Thousands of gallons of fracking chemicals contaminated their trout creek, and multiple fracking wells, leaking for more than a year, contaminating the fresh water spring 200-feet from their home. Their five-year-old son now suffers crippling stomach pain.
- 2) Sherry Vargson had her properties hillside levelled for a hydraulic fracture pad, and a rig constructed 500-feet from her house. Once the fracturing began, water trucks made hundreds of trips along her driveway, while air compressors roared day and night. Gas flaring produced flames so bright they could be seen for 12-miles. Shortly after production began, trough water stopped freezing on cold nights, faucets sputtered, and the water could ignite. After she and her husband suffered headaches and nausea while showering she had the water tested. There were extreme levels of methane present, as well as radium, manganese and strontium.
- 3) Joe Bezjak found himself in jail when he asked Laurel Mountain Midstream employees to stop illegally dumping sulphur water on his property, despite them working against the court's direction. Bezjak raises black angus, and has had his entire pure blood herd ruined when his fences were broken during construction work, and his cattle intermixed with cattle from his neighbour's farm. Many of his cattle have been lost, and his calves found dead.

Lawrence County

- 1) Maggie and Dale Henry lost their home and farm business after Hilcorp fractured on their property. Earthquakes caused extreme damage to the foundation and walls of their house. The Henry's were also once known for their sustainable agriculture and naturally grown produce and animals. No pesticides or herbicides were used on their produce, however, after fracking, neuro toxins, BTEX gas, endocrine disruptors, and other carcinogenic, noxious chemicals were present in the food. When animals began dying, in a very short space of time, the Henry's ceased production and closed their farm.
- 2) Stacey Haney and her children have suffered health problem from the contaminated water on her property, forcing them to leave their home and abandon their surviving animals. Haney noticed a terrible smell in the shower, and that the, sometimes black, water was eating away her faucets, washing machine, dishwasher and hot-water heater. After a half dozen emergency visits to hospital, Haney's son's blood was tested. He had elevated levels of arsenic in his system. Haney and her daughter soon followed with testing, with heavy metals and industrial solvents being discovered, including arsenic, toluene, and benzene.

Erie County

- 1) Ronald and Catherine Gates sought damages after 50-acres on their property was “rendered almost unable to be used again” following fracking operations. They also claimed their signatures were forged on land leases.

Susquehanna County

- 1) The Fallon family tested a black sediment that appeared in their well water after hydraulic fracture began. Tests showed this to be manganese oxide. Many neighbours reported the same findings at the same time and shortly thereafter people and animals became sick. The Fallon family was forced to sell their animals and close their business.

Potter County

- 1) David Barndt lost over a dozen acres to hydraulic fracture stimulation company Triana without his consent and was close to losing another 30-acres for a water contaminant pond.

Jefferson County

- 1) Tom and Jenny Lisak lost the use of their water spring shortly after Marcellus started hydraulic fracture stimulation in their township. Soon after the air was polluted from venting, flaring, and “unintended releases”. They lost family pets from the illegal spreading of produced water on the dirt road adjacent to their property.

These stories will become the stories of farmers in Western Australia should hydraulic fracture stimulation go ahead. Locally grown and locally farmed produce will no longer be available in Western Australia, putting many Western Australians out of work, with all food produce needing to be imported.

Well Integrity and Failure

Regulations are not enough to negate well leaks and failure. One of the world’s largest companies specializing in hydraulic fracture stimulation, Schlumberger, admits that about 5% of wells leak immediately, 50% leak after 15 years, and 60% leak after 30 years. **All wells leak eventually.** Conservative estimates of well failure rates are between 4.6% and 8.9%. Higher rates of 12%, 20%, and up to 75% have been reported.

Hydraulic fracture gasfields can have up to six wells drilled per square kilometre, and more than half of Western Australia’s 2.646-million square kilometres are covered by hydraulic fracture stimulation licence. Potentially, Western Australia could have 8-million hydraulic fracture wells drilled if unconventional gas production goes ahead. If a conservative 5% of these wells leak immediately, Western Australia will have around 400,000 failed wells on its hands. All before hydraulic fracture gas production has even begun.

At the end of a well’s lifespan, wells are abandoned by the gas companies, with all future responsibilities passed onto the community. Analyses suggest that in Pennsylvania alone there are up to 970,000 abandoned hydraulic fracture wells, most unaccounted for in the state database. Survey shows that the older of these wells leaked methane and could be responsible for up to 13% of the state’s methane emissions. Deterioration of abandoned wells over time has led to long term leakage of chemically infused brine water into groundwater sources.

A major problem occurring in hydraulic fracture wells, and one that still challenges the gas industry, is gas migration. As well as natural gas migration, occurring through rock fissures, pressure build up can force fluids to leak from the well casings. This is known as sustained casing pressure (SPC). SPC occurs when well casing components are placed under too much pressure during hydraulic fracture operations, due to the extreme high pressures required in this type of drilling. The pressure of these fracture fluids being forced through the casings causes the seals to burst or the casings to crack. Although SPC can occur in a well of any age, by the time a hydraulic fracture well is 15-years old, the probability of having measurable SPC in one or more of its casings is 50%. In 2012, a shallow casing failure occurred during hydraulic fracture stimulation at the Baldwin 2HST-1 well in the Northern Territory. Hydraulic fracture fluids were left in the well, and the well was abandoned.

In Pennsylvania up to 9.1% of conventional wells drilled since 2000 contain compromised cement and/or casing integrity. Unconventional (hydraulic fracture) wells drilled in the same region since 2009 show the same compromised integrity at a rate up to 2.7 times higher than conventional wells. Cement and casing faults cause the most well integrity problems. Cement will deteriorate over time, but it can also shrink, develop cracks, or become lost into the surrounding rock when poured. As well as cracking under hydraulic fluid pressure, casings can leak at connections and corrode from acids. Lives were lost in the Gulf of Mexico during the repair of a faulty well.

Gas Companies Credibility

Although it has been proven that hydraulic fracture stimulation causes harm to environment and health when all guidelines are followed, the truth remains that many gas companies simply don't abide by the law to begin with. Regulation will not replace contaminated water or lives lost if gas companies continue with their current methodology.

Between January 2011 and August 2014 in Pennsylvania, 54 companies were cited for health and environmental violations. It was found not just to be the larger of companies responsible for these violations, but the smaller as well. And neither only companies based out of state, but also the local, guilty of breaking numerous laws. The worst of these, Cabot Oil & Gas Corporation, of Houston, Texas, cited for 265 violations.

In Pennsylvania, 243 cases were heard between December 2007 and August 2014 for contamination of drinking water supplies. In July 2012, Chief Oil & Gas were cited after allowing 4,700 gallons of hydrochloric acid to flow from its drilling site into Leroy Township, Bradford County, and into Towanda Creek, causing fish in the creek to die. In the Marcellus Shale region, Carrizo LLC was cited for failing to restore a water supply after hydraulic fracture stimulation activities caused contamination. EQT Production was twice cited in 2012 for violations at a hydraulic fracture well in Duncan Township, Tioga County, that polluted the towns local stream. In Bell Township, Clearfield County, 2012, hydraulic fracture company Exco Resources was cited, when a well drilled for the specific purpose of injecting toxic waste underground leaked and contaminated the towns underground drinking water.

Conclusion

It has been scientifically proven, beyond any doubt, that hydraulic fracture stimulation is unsafe. Contamination of water, air and soil has occurred in all locations across the globe where hydraulic fracture stimulation has taken place. Farmland and Indigenous Sacred Sites have been lost. People have had to abandon their homes and close their businesses. Picturesque countryside has become industrialised wasteland. There are those that will argue these atrocities are the result of poor regulatory framework and that with strict protocol, hydraulic fracture stimulation can be managed safely in Western Australia. This is false. Not all contamination can be avoided, such as gas leaks through natural rock fissures. Not all hydraulic fracture companies will abide by the law. No fine enforcement is large enough to replace what could potentially be lost due to error by uncaring, money hungry corporation. Industrialisation of the regions would be unavoidable, and history cannot be repeated to replace sacred sites. There is no regulatory framework that can be written to protect Western Australia. The risks are far too high to allow hydraulic fracture to go ahead.

I ask, to what end, does this industry serve, does this industry cost, does this industry provide? I cannot see the point. To force upon the people of Western Australia, a form of gas mining that it does not want and did not ask for. How long will the gas that is extracted from Western Australia, or from the entire world, last? 50 years? 100 years? 200 years? How long does the race of man expect to survive? There is no doubt that there is not enough gas (nor any natural resource) under the ground that will see the human race supplied with energy until extinction. At some point, the world must adopt a new way. A new system, that sees mankind safe and comfortable from provisions of energy, that keep their way of life intact. This will mean developing renewable sources of energy. Step aside from the debate of environment and health and understand this from an aspect of sustainability and availability. Now, if this is the inevitable future, can I ask the point of the time, the effort, the money, all that must be put in to pull resource from the ground? Why would you not choose one investment? One that is self-perpetuating, and eternal? One that does not cause the conflict of a nation, one that does not destroy lives and livelihoods, one that does not compromise the planet that we rely on for our own survival. I cannot make sense of why anyone would think that gas extraction is a wise move. Anyone, that is, who does not profit from the exploitation of this finite substance. Forget about the profit and look ahead to see how your family will survive in the next millennia. Will there even be a world left for them or will the total extraction of natural resources push the planet to the brink? Unable to repair itself from the carnage that mankind created, all for comfort. Hydraulic fracture stimulation does not make sense. Hydraulic fracture stimulation should be banned.

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