

# THE AUSTRALIAN FLUORIDATION NEWS

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## CSG Fracking Contaminates Water

Coal Seam Gas (CSG) extraction chemicals include fluorides and flammable, poisonous hydrocarbons which leach into the water table, adversely affecting people's health and destroying productive farming land, but government and industry don't seem to care.

Fluoridation involves the disposal of the phosphate fertiliser and other industry's toxic fluoride wastes through domestic water supplies to your kitchens and bathrooms.

Meanwhile people are also being harmed by exposure to coal seam gas extraction chemicals including fluorides pumped under pressure into the ground but then disperse into ground water and cannot be fully reclaimed.

Efficient extraction of Coal Seam gas requires the use of BTEX chemicals, (Benzene, Toluene, Ethyl-benzene and Xylene), mixed with large volumes of water.

Although the use of BTEX chemicals is banned in NSW and Queensland, *The Sydney Morning Herald* (SMH) reported (14-15 March 2015) that:

*"The discovery in January of the chemicals... in two of AGL's coal seam gas wells and a storage tank prompted the Department of Resources and Energy and the Environment Protection Authority to order an immediate halt of the pilot project".*

Greens MP Jeremy Buckingham said:

*"The chief scientist warned of 'unintended consequences' from fracking for coal seam gas and her prediction is coming true with a string of incidents".*

***"The chief scientist warned of 'unintended consequences' from fracking for coal seam gas... [it's] coming true..." - Jeremy Buckingham MP***

After drilling from the surface to a coal seam, the process of fracking involves forcing BTEX chemicals mixed with large volumes of water into the coal seam under high pressure, causing the coal seam to fracture, thus releasing the gas. Only some of the contaminated water is recovered. Some of the recovered waste water is held in large storage tanks, while some is sprayed on dusty roads or drained into local creeks.

Two risks loom large: the contamination of our precious groundwater with BTEX chemicals, particularly of the Great Artesian Basin, as well as extensive depletion of water in the Basin due to the huge volumes of water that fracking requires, if the predicted thousands of wells are drilled.

Part of the SMH's report indicated that the BTEX chemicals were reported in the pre- and post-treatment samples of flowback water shipments handled by AGL contractor, Transpacific Industries, between October and December.

### The Chemicals & Their Effects on Humans Benzene

"Before World War II, the largest market for benzene was in gasoline blending to improve octane ratings. After 1950, benzene in gasoline was largely replaced with tetraethyl-lead. In recent years, with the recognition of the hazards of lead in the environment, the [US] EPA has limited the amount of lead in gasoline to 0.1 g/leaded gallon. In addition, the EPA has suggested limits for benzene content of gasoline.

"Benzene is still used extensively as a gasoline component in Europe and many countries do not limit the benzene content. Exceptions are Austria, Norway, Sweden, and Switzerland, which set the maximum at 5.0 vol%. Over 90% of European motor gasolines are below the 5.0 vol% limit set by these countries. It is likely that benzene content of European gasoline will be further reduced in the future.

"Approximately 95% of U.S. benzene is consumed by industry for the preparation of polymers, detergents, pesticides, pharmaceuticals, and allied products.

"Benzene is alkylated with ethylene to produce ethylbenzene, which is then hydrogenated to styrene, the most important chemical intermediate derived from benzene. →

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**"Benzene is a toxic substance that can produce both acute and chronic adverse health effects. It is generally recognized that prolonged or repeated exposure to benzene can result in serious damage to the blood-forming elements."** <sup>1</sup>

Dr Waldbott reported in 1978 of some the effects of benzene:

"Thirty-two patients who had recovered from a blood disease (bone marrow impairment) caused by benzene poisoning had significantly increased rates of "unstable" and "stable" chromosomes. Aberrations of chromosomes were present for several years after cessation of the exposure and after recovery from poisoning.(35) Persistence of an increase in the stable changes was particularly remarkable." <sup>2</sup>

## Toluene

"A colorless mobile liquid. Uses include blending into gasoline to increase octane number. **It resembles benzene closely in its toxicological properties.** About 90% of toluene generated by catalytic reforming is blended into gasoline as a component. A valuable blending compound, particularly in unleaded premium gasolines. It has a higher octane number compared to regular and premium unleaded gasolines. Toluene largely replaced benzene from the 1920s, following reports of deaths due to benzene exposure.

With HF or BF<sub>3</sub> which forms a sigma-type complex, or in the case of reaction with nitronium ion or chlorine where formation of other sigma bonds and complexes plays a significant role, **the methyl group participates through hyperconjugation and the relative reactivity of toluene is enhanced by several orders of magnitude compared to that of benzene.**" <sup>1</sup>

## Xylene

"Information on the acute and chronic toxicity of xylenes was identified for aquatic species from a number of tropic levels and taxa, including algae to fish and amphibians. Data on toxicity to terrestrial and avian species are limited to bacteria and plants.

**"Xylenes enter the Canadian environment primarily through atmospheric releases, as a result of their use as solvents and their release from transport sources.** Xylenes are released into the soil and groundwater in spills and in leaching from contaminated waste disposal sites, and to surface water through spills and discharge of contaminated effluents. Xylenes do not persist in water or soil because of their high volatility and their biodegradation, nor do they persist in the atmosphere because of their rapid photo-oxidation.

**"Reacting of Xylenes is enhanced again by several orders of magnitude over that of toluene."** <sup>1</sup>

## Some Health Effects of these Hydrocarbons

Dr Waldott reports further on the health effects of these hydrocarbons:

*"2. Vapors of aromatic hydrocarbons, which include benzene, toluene, styrene, and xylene, are more irritating to the mucous membranes than equivalent concentrations of the aliphatic and alicyclic hydrocarbons. They constitute serious occupational problems. After long-term inhalation, abnormalities of the blood such as anemia, leukopenia (low white blood cell count), and leukemia have been associated with exposure to aromatic hydrocarbons, for instance, in chronic benzene poisoning.(8) No acute effects, however, have been reported at levels below 25 ppm."* <sup>2</sup>

Waldbott later gives examples of effects of these chemicals in the environment:

*"An example of poisoning of aquatic life caused by dumping, wherein thousands of fish, frogs, snakes, tadpoles, and worms*

*died, occurred in a minor waterway, called Crooked Creek, south of the Missouri town of Troy.(8) A pest-control operator had disposed of some excess material: he pulled his truck off the main road and dumped the chemical on the ground in a shady spot 100 yards from the creek, into which it seeped. The cargo contained, chlordane and Malathion mixed with xylene, a preparation to control termites."* <sup>2</sup>

**Even Wikipedia.org reports that benzene is a carcinogen, toluene (methyl-benzene) is less carcinogenic, and (according to the IARC) ethylbenzene is a possible carcinogen.**

## Earthquakes and Loss of Groundwater in Oklahoma (USA) from Fracking

As if the potential for contamination of water sources by BTEX chemicals from fracking and loss of groundwater forever isn't enough, the SMH reported on 28 March 2015 in a two page article, that after fracking was finished around the Oklahoma towns of Medford, Cherokee and Stillwater, there has been a dramatic increase in seismic activity.

***"The number of perceptible earthquakes leapt from an average of two each year to 567 last year - an increase of 28,250 percent between 2009 when the fracking began and last year.***

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***"It feels like a bomb going off," says Mark Crismon, a Vietnam veteran, of the first wave of energy that hits with one of the larger quakes.***

*"That primary wave is hitting at about 3000 feet per second, 300 km/h or better. You have to be real close to a bomb to get the concussion you get from a primary wave from an earthquake that is a quarter of a mile [400 metres] away."*

*"Oklahoma's state seismologist, Dr Austin Holland, took his post in 2009 and soon after he arrived he observed a swarm of earthquakes. At first he was not too concerned but after the activity did not settle down in the coming days he began to worry..."*

***"Two recent technical breakthroughs launched the fracking boom that has again made the US an energy super-power over the past five years.***

*"First, drillers learned to turn their bits sideways when they hit porous shale filled with formerly unrecoverable oil. Then they learned to force millions of litres of a water and chemical cocktail into the shale, breaking it open so the oil flowed freely to the top.*

***"The problem is that you then have to find somewhere to put the unusable wastewater from the fracking process. The solution in Oklahoma was to bore even more holes and to pump the wastewater into them at high pressure..."***

*"Holland believes this pressure - not the water itself - is acting as a lubricant along fault lines, though more study will be needed to work out why it is affecting Oklahoma more than other states."*

The SMH also quotes the US Geological Society as to what is causing the earthquakes:

*"Deep injection of wastewater is the primary cause of the dramatic rise in detected earthquakes and the corresponding increase in seismic hazard in the central US."*

The SMH article quotes Medford City manager Des Mandeville:

"When the frackers move in, they suck up water wherever they can find it, from dams and streams, even from the side of the road after heavy rain. Wells that used to strike water at 5.8 metres now need to be sunk to 9.7 metres, Mandeville says."

## Australian Governments have tried to ignore the age-old Common Law

Former Prime Minister the late Malcolm Fraser was praised by many prominent Australian figures from all sides of politics and the public for his substantial contribution to human rights and equality, as well as recognition of Indigenous inhabitants.

In an Editorial on 21-22 March 2015, the SMH stated that Fraser:

**"Having helped launch the Commonwealth Ombudsman and Australia's first Freedom of Information law, he bemoaned [the fact] that 'over the last 25 years, we have learnt on more than one occasion that the old reliance on the common law to protect the basic rights of ordinary citizens is not effective and can so easily be trampled on by government'."**

In Australia, governments, not landowners, own the right to everything below the surface of the land. This would be a fair process if governments gave rightful priority to the long-term future of the land and its inhabitants, as aboriginal culture has successfully done for thousands of generations. However governments have frequently abrogated their major responsibility to the people. The practice of virtually giving away the right to natural resources below the ground to corporations whose primary purpose is to make a profit, as with CSG exploration and extraction, is a key example of this repeal of a government's duty.

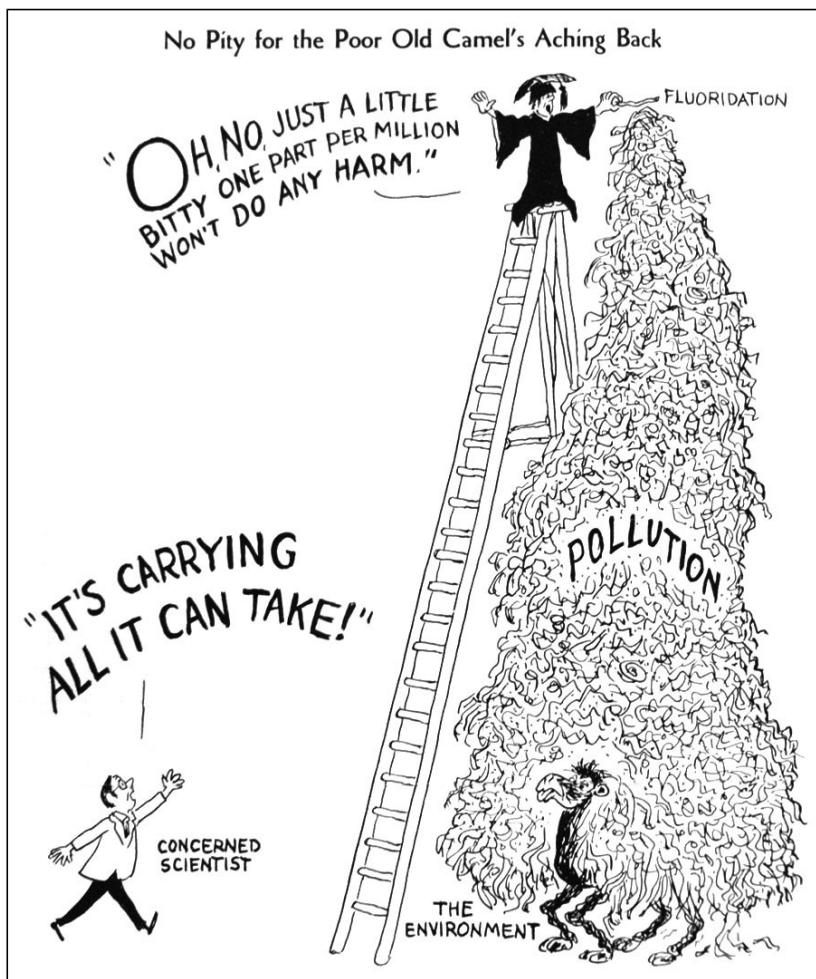
**No wonder the ANZAC spirit is reacting to any government, which, in Fraser's words, "tramples on the basic rights of ordinary citizens" as extraction of coal seam gas by fracking becomes an ever-present concern to thousands of citizens.**

## Waking up People Power

The 'Lock The Gate' Alliance has produced a professional 40 minute video covering the rise of this social movement and many of the main issues. Using government figures, they show that 53% of Australian land mass has either licence (or applications) for exploration and production,<sup>5</sup> though this may cover all types of mining, not just unconventional (CSG). These licences affect every state, although Tasmania has renewed a ban on fracking.

The video includes a list of fracking chemicals (although CSG companies prefer not to disclose this information) including fluorocarbon surfactants<sup>5</sup> and hydrofluoric acid.<sup>6</sup>

Drew Hutton (President of 'Lock the Gate') says that "Fifteen years after the industry starts in the United States, the evidence is now starting to come through. Fracking contaminates ground



water. Fracking is a health hazard. And we need to heed the lessons that are coming out of a place like the US, where they've fracked the hell out of it now for two decades."<sup>5</sup>

US documentaries *Split Estate* (2009) and *Gasland* (2010) both show the destruction caused by fracking.<sup>7,8</sup> Two Australian movies have been released: *Farmland Not Gaslands* (2014)<sup>9</sup> is set in Victoria, while *Frackman* (2015) was filmed in NSW and QLD.<sup>10</sup>

Maxwell Igan, presenter on *TheCrowhouse.com*, says "Water is the most valuable resource in Australia... We have laws and legislation in place in this country which says that it is illegal to pollute ground water. And here we have an industry which is threatening ground water."<sup>11</sup>

Igan continues: "if they [the government] cannot show me the studies they have conducted before this industry commenced, then this government and each member of this government that supported this industry, should be held in abuse of office, and tried, and held accountable for their actions."<sup>11</sup>

Many farmers have also suffered the drought and the heartless banksters. Droughts these days can be suspicious, especially with substantial aerial spraying, known as "climate remediation".<sup>12,13</sup>

CSG has the hallmarks of an approaching and unnecessary humanitarian crisis. But observe that our mainstream media have mostly pandered to the CSG industry and haven't yet joined the fight for our rights, and safe, clean water and farmland. →

### References to details of the Effects on humans of BTEX:

1. Encyclopaedia of Chemical Technology 5th Edition: Kirk-Othmer, John Wiley & Sons, Inc. Hoboken, New Jersey, Includes ISBN-13 978-0-571-484943 (Set), Volumes 3,13 and 25.
2. Waldbott, George L., M.D.: Health Effects of Environmental Pollutants. 2nd Edition, 1978, The CV Mosby Company, Saint Louis, ISBN 0-8016-5331-2 (pp. 256, 286)
3. Novick, S: Radioactive mining waste, environment 8:10-15,1966.(Ref by Waldbott)
4. Government of Canada, Environment Canada, Health and Welfare Canada, 1993 (p619, p615) - [NSW Public Library Sydney NQ363.728152]

### Further Resources: (Available at www.YouTube.com unless indicated\*)

5. *CSG, A Fractured Country, An Unconventional Invasion* (2013), LockTheGate 40m
6. *Fracking Hell – South Africa's Gas Dilemma* (Link TV's Earth Focus)
7. *Split Estate* (2009). US Documentary.
8. *Gasland* (2010) US Documentary.
9. *Frackman* (2015) Australian made documentary. See [frackmanthemovie.com](http://frackmanthemovie.com).\*
10. *Farmland not Gaslands* (2014) Australian documentary(28mins) [www.foe.org.au](http://www.foe.org.au) \*
11. *TheCrowhouse.com - Surviving the Matrix 202 – The Future Begins Here*
12. "What in the world are they spraying?" - 98 mins, on geo-engineering 'chemtrails'
13. "WHY in the world are they spraying?" (2012) - 73 mins
14. *Fractured Future* (2013) by Ian R. Crane. (2:31:40)

Governments may try to regulate the CSG industry (which would only condone it). Given the damage done already and further foreseeable destruction, we must instead invoke the precautionary principle and revoke existing CSG licences.

**Ian Crane, in his DVD presentation *Fractured Future* (2013), says "the critical issue is shutting down the drilling and fracking process on land. If we don't do this, in 10, 15, 20 years we're not going to recognise this country. The soil is going to be poisoned. We're not going to be able to grow crops. We're not**

**going to be able to raise livestock. We're going to be dependent on the corporations for our drinking water."** <sup>14</sup>

We require a collective community response. It's not just about your land, it's about our neighbours too; the whole community, and indeed on a national and global level. People have the right not to be undermined and poisoned. It starts with us standing up for ourselves and our community. See [www.lockthegate.org.au](http://www.lockthegate.org.au) for how you can become involved in your own way in the grassroots campaign. United we stand.

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## EDITORIAL: HONOURING THE ANZAC SPIRIT

**With the 25th April 2015 centenary of Anzac Day celebrations across Australia and New Zealand, and the huge military losses suffered during the remainder of WW1, we should reflect on what we celebrate.**

After months of fighting at Gallipoli, against Turkish soldiers in a dominating position defending their homeland, in terrible conditions with massive casualties, then an amazing night withdrawal months later, what do we celebrate? Rather than a victory, we commemorate the fighting spirit, not a defeat!

During WW1, Australia lost a large proportion of a whole generation of young men in the prime of their lives, with four times that number physically injured and large numbers mentally scarred for life, although medically unrecognised at that time. About 1 in 8 of the four million population of men, women and children were killed or injured.

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**The ANZAC spirit lives, often dormant, in many of us. When injustice becomes obvious, people band together, supporting one another for a common goal, as the Anzacs did.**

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Perhaps the Anzac tradition had its genesis in the creation of the Commonwealth of Australia, just 14 years before the start of WW1 and was cemented in the hearts and minds of Aussies by their courage displayed in face of extreme adversity, with mateship at its very best. But also the indomitable spirit of new settlers from the previous century, in what was seen as a land of hope, often harsh, but possibly bountiful, a land of freedom and opportunity, with an essential need to cooperate with mates for the benefit of all.

We should learn from the first inhabitants of Australia, dating back tens of thousands of years; that we are here to care for and preserve the land for coming generations. Whoever owns or controls the land and its bounty, including pure water supplies, controls our way of life, and effectively owns us.

Whenever referenda have been held in Australia, a substantial majority of voters, with one rare exception, have strongly opposed the deliberate addition of known highly toxic fluoride compounds to our environment, particularly in drinking water supplies.

According the Sydney's Channel 7 TV News (31 March 2015, 6pm), Queensland is the state with the least impact from fluoridation; in NSW, 16 councils are investigating the removal of artificially added fluoride from their water supplies.

Where NSW water supplies have been artificially fluoridated, it can't be removed without approval from the Health Department.

Approval to stop fluoridation has been refused in the past, for example at Forbes, with the threat of a daily fine if it was stopped.

As with fluoridation, the Coal Seam Gas industry (see page 1 article) adversely impacts people, animals, prime farmlands and the environment, only for short-term profits, and must be stopped.

**Residents in areas affected by CSG exploitation are coming together and protesting vigorously, including the "Lock the Gate" campaign. The newly re-elected NSW government promised a moratorium prior to the election. A total ban is needed.**

**The ANZAC spirit is no longer confined to the military. It lives, often dormant, in many of us. When injustice becomes obvious, people band together, supporting one another for a common goal, as the Anzacs did.**

If we are only half as brave as the original Anzacs, we can each stand up and contribute ourselves, speak our truth, and intentionally strengthen our communities. Together we can turn away these profit-driven invaders.

**This spirit is needed in many walks of life in our homeland, now more than ever, in the country and especially in the cities. Enshrined in that spirit is the opposition to injustice and preservation of genuine democratic principles for the benefit of all. Long live the ANZAC spirit.**

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### Brief News

#### Water Fluoridation linked to hypothyroidism

Underactive (hypo-) thyroidism is 30% higher in fluoridated areas, according to a study in England, published online in the *Journal of Epidemiology and Community Health*.

The study compared low fluoride areas with areas of 0.7ppm fluoride or more. The findings are consistent with previous research showing a link between fluoride exposure and lowered thyroid function.

Sources: *Nexus* 3/22 (Apr-May 2015) p8; *British Medical Journal* 24 Feb 2015

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