

**SUBMISSION TO THE ENVIRONMENT AND PUBLIC AFFAIRS COMMITTEE
From Robyn Watts,**

**Inquiry into the implications for Western Australia of Hydraulic Fracturing for
Unconventional Gas**

I live in Dongara, and fracturing for unconventional gas is proposed here and in other areas of Western Australia. I have grave concerns regarding this process, as there is evidence that pollution has occurred in the United States following well failures. I do not want the groundwater which supplies potable water to towns and farming properties in the Midwest and elsewhere in the state to become polluted or depleted as a result of unconventional gas fracturing. It does not appear that sufficient research has been carried out in this state to be confident that there will be no irreversible damage to the quality and quantity of our water. The following comments address the terms of reference for the inquiry.

**A. HOW HYDRAULIC FRACTURING MAY IMPACT ON CURRENT AND FUTURE
USES OF LAND**

1. Groundwater can be polluted by both the chemicals used in the fracturing process and those released during the process. These chemicals include toxic substances which even in very small quantities can pollute groundwater. Once pollution occurs, it will be there for ever.
2. The huge quantities of groundwater used for fracturing, up to 25 million litres for one operation, can affect the quantity of groundwater available for horticultural activities such as the fruit and vegetable growing carried out in the Midwest.
3. Chemicals released from the fracturing process, including methane and benzene, and radioactive materials, are likely to cumulatively increase the risk of cancer, blood diseases, asthma and other illnesses.
4. The relevant legislation permits gas companies to enter private land, and land of conservation or heritage value, with no rights for landowners or the public to prevent this. The clearing of conservation and farming land for fracturing will directly impact on the area of land available for farming and the quality of conservation areas. It is also likely to degrade aboriginal heritage areas in the north west.
5. It is highly unlikely that compensation paid to landowners can adequately provide for future problems, once the gas companies have completed operations.
6. The number of trucks on the roads in the Midwest, including the Brand Highway and the Midlands Road, is currently very high and contributes to the constant need for maintenance and the likelihood for more accidents, in addition to the nuisance factor of noise. The number of trucks on major and local roads is likely to increase considerably, and create increased maintenance requirements, reduced safety and increased noise..
7. Hydraulic fracturing is likely therefore to restrict the use of the land for farming activities and may result in people having to leave their properties due to a reduction in water quality and quantity. Landholders, including farmers, have no rights under current legislation to prevent fracking on their own land, despite the potentially high risk of contamination to their produce and the loss of arable land. It is also likely to cause health issues, which can result in people having to leave their properties, and to result in insufficient compensation for the loss of farming land and potential pollution of groundwater. Towns will also be seriously affected if the aquifers supplying potable water become polluted.

8. The quality of life is also likely to be reduced due to the noise of drilling and trucks, the potential for air pollution, the large areas of land which will be cleared both for drilling sites and for access, and the visibility of flares which would be burning constantly.

B. THE REGULATION OF CHEMICALS USED IN THE HYDRAULIC FRACTURING PROCESS

1. Companies proposing hydraulic fracturing for unconventional gas are required to prepare an environmental management plan, which is forwarded to the Department for Mines and Petroleum. This plan lists the chemicals used in the fracturing process, but does not appear to address the substances released during the process (refer for example to the AWE document "Woodada Deep-01 Hydraulic Stimulation Environmental Bridging Document"). Details of the properties and toxicity of the chemicals appears to be that supplied by the chemical companies, with no independent assessment. The Material Safety Data Sheets (providing information about the chemicals used), which are included as an attachment to the Environmental Bridging Document, contain the following disclaimer:
"This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user."
2. It is noted that returned fluids are placed in retention ponds which are lined with heavy duty plastic and allowed to evaporate, which surely must release chemicals into the air, however this also does not appear to be addressed.
3. These retention ponds could tear and leak, and as they are open are likely to be accessible by wildlife, particularly birds.
4. The Department for Environment and Conservation does not assess the environmental management plans, and there are no provisions in the relevant legislation for enforcement of the plans. Even where hydraulic fracturing is to be undertaken within the Lake Logue Nature Reserve the DEC has decided not to assess the proposal. There is therefore no independent assessment of the use, handling and potential impacts of chemicals both used and released during the process.
5. Chemicals will need to be trucked to the drilling sites (it is proposed within the above bridging document that chemicals are transported and stored in 1000 litre containers). Are there any regulations covering the transport of these chemicals?
6. The toxicity and cumulative health impacts of all chemicals should be independently assessed, and usage independently monitored.

C. THE USE OF GROUND WATER IN THE HYDRAULIC FRACTURING PROCESS AND THE POTENTIAL FOR RECYCLING OF PRODUCED WATER

1. The quantity of groundwater used in the hydraulic fracturing of unconventional gas is massive, and can be up to 25 million litres for a single well. This could lead to depletion of groundwater supplies, particularly during years of lower rainfall in areas of the state such as the Midwest which do not in any case have high rainfall.
2. Gas companies do not pay for the water they use. Payment for groundwater usage could be used to provide for ongoing independent monitoring of the quality and quantity of groundwater.

3. Many of the proposed gas wells will pass through underground aquifers, which supply local towns and farms with water for drinking and to grow produce or raise animals commercially. Numerous reports, including a 2012 European Commission report, indicate that there is a high risk of pollution to this groundwater with the potential for serious health risks both during well construction and production and after wells are abandoned.
4. Recycling of the used water may have potential, however this water contains both the chemicals used during the fracturing process and those released from underground by the process. Would additional (fresh) chemicals need to be added for the reuse of this water, and what would the cumulative impacts be where additional chemical substances are released each time from underground?

D THE RECLAMATION (REHABILITATION) OF LAND THAT HAS BEEN HYDRAULICALLY FRACTURED

1. The Woodada Deep-01 Hydraulic Stimulation Environmental Bridging Document states that "Monitoring will be conducted until Completion Criteria are achieved (generally 3 years)." These criteria include contaminated sites management, revegetation and so on, however it is not clear who will be monitoring this process and ensuring that no contamination has occurred or will occur in the future.
2. Proposed rehabilitation of land which has been hydraulically fractured should be independently assessed and monitored.

ADDITIONAL COMMENTS

It is of concern that the Department of Mines and Petroleum (DMP) is the body responsible for assessing environmental reports provided by the gas companies, and that no licence is required from the Department of Environment and Conservation to undertake operations which potentially can have devastating impacts on public health, the environment and the quality and quantity of groundwater. As noted above, independent monitoring of operations should be an essential requirement, including baseline monitoring of water quality and quantity prior to the commencement of operations.

Setting the question of independence aside, it is also questionable whether with all good intentions the DMP has sufficient staff and resources to undertake monitoring if proposals are allowed to proceed in the numbers and with the speed they have in the United States and some European countries.

The European Commission Report "Support to the identification of potential risks for the environment and human health arising from hydrocarbons operations involving hydraulic fracturing in Europe" (August 2012) provides strong evidence that hydraulic fracturing for unconventional gas is highly risky and it may not be possible to carry it out safely. This type of fracturing, using very high pressures and huge volumes of water, has not previously been carried out in Western Australia and should not be permitted to commence unless it can be proven that no detrimental impacts will occur. If it is permitted to proceed, then the legislation needs to be amended prior to its commencement to provide for groundwater protection, independent assessment and monitoring, landowner rights, and to provide for the protection of arable farming land and conservation and heritage areas.

Robyn Watts