fracking inquiry

From: Errol Lawson [redacted]
Sent: Friday, 9 February 2018 2:47 PM
To: fracking inquiry
Subject: Submission from Errol LAwson
Attachments: Speaking notes to Pepper Inquiry.docx

Please find attached my Speaking notes to the Inquiry on 7th February plus some additional notes consequent on a discussion with Dr Ross Smith. I would be pleased if you could forward these to Dr Smith straightaway.
Thank you
Errol Lawson

TO: Scientific Inquiry into Hydraulic Fracturing in the Northern Territory
Atten: Dr Ross Smith
From: Errol Lawson
Date: 9 February 2018
Subject: Speaking notes to Pepper Inquiry 7th February

Attached are my speaking notes for my verbal presentation to the Inquiry at Katherine on 7th February. They are unchanged from that verbal presentation. This covering note includes additional material on Well Integrity following a discussion with Dr Ross Smith at the conclusion of the public forum.

The discussion with Dr Smith prompted me to reread Appendix 14 of the Draft Final Report *Report into the shale gas well life cycle and well integrity* - CSIRO 2017.

My interests are loss of Well Integrity in the hundred year timescale and the consequences of such loss on the Tindal aquifer. My position is that of a medium term resident in Katherine. I hope that my descendents will have the choice of living, working and playing in and around Katherine. I believe I share that hope with the people who have voiced strong opposition to an unconventional gas industry. It is a hope that distinguishes us from the originators of much of the material in support of a gas industry.

For all parties the assessment of risk is based on the combination of probability of an event and its consequences. My cautionary approach is derived from the following extracts from Appendix 14:

Introduction
The drilling and hydraulic fracturing technologies used in shale gas projects have evolved from those used for conventional petroleum resources, with a great deal of innovation over the past two decades.

And Section 5.1.4

The National Petroleum Council (**NPC**) in the United States is an oil and natural gas advisory committee to the Secretary of Energy that comprises industry and non-industry members. A working group of the NPC made certain observations about abandonment practices:[74]

☐ the underlying technologies used have not seen significant progress since the 1970s, and there is room for innovation;

☐ abandonment is a cost for oil and gas companies, and any benefits may not be valued by the companies;

☐ companies are likely to minimise costs while meeting the minimum standards imposed by regulators – this contrasts with well integrity management during the rest of the well life cycle, where maintaining safety, production and operating efficiency are clear benefits to industry.

It is the comment above that underlying technologies have not seen significant progress since 1970 which lead me to a judgement of technology overreach. And the following from the Conclusion that probability of methane migration is not known:

This risk is also present after wells have been abandoned, and there is limited data on the long-term integrity of shale gas wells.

I have no difficulty accepting that:

- Overpressure in a depleted shale reservoir may be low
- Permeability of unfracked shale is high
- Pathways from the reservoir to the near surface aquifer are long.

However it seems to be agreed that migration paths from the reservoir upwards are certain to form and the longer the timescale the higher the certainty. There is no knowledge on time lapse before methane reaches the near surface structures, particularly aquifers or the eventual flow rate over an abandoned production field. The cost of resealing an abandoned leaking well is also not known.

Assessment of probability of aquifer contamination of an aquifer and consequent environmental, social and economic impacts by people living in the region and dependent on the Tindal aquifer are strongly influenced by the following:

- Disquiet over many years at the mismanagement (over allocation) of NT groundwater by governments.
- Expressions of that disquiet disregarded by government in favour of lobby groups.
- Opportunity afforded by the Fracking Inquiry for that disquiet to be expressed and heard
- Discovery of PFAS contamination of the Tindal aquifer.

Some of the vigour of expression of opposition experienced by the Panel in the early months of the Inquiry may have had a component of frustration at our inability to get a hearing with government on groundwater management. Our concerns then were possible contamination from fracking in addition to over allocation.

In more recent months the PFAS has brought home the consequences of contamination of the Tindal aquifer and hardened the resolve that the aquifer must not be subject to any risk of further contamination.

I trust the Panel will recognise that assessment of risk by people dependent on the aquifer will always be higher than people living elsewhere.

Errol Lawson

Speaking notes to Pepper Inquiry-7 February 2018

Errol Lawson

Setting the Scene

- Decision to Frack or Not-to-Frack is in the Political domain where issues of Public Interest and the Common Good are decided
- Communities' attitudes were polarised almost immediately on first exposure of unconventional gas proposition 4 to 5 years ago
- Inquiry processes and reports may not have changed many minds
- Low level of confidence in Government and mistrust of Industry are entrenched
- Monumental failure of Government to carry out Due Diligence
- Inquiry insistence on evidence-based submissions has led to a deeper understanding of environmental, social and economic consequences of an unconventional gas industry.

Robust Regulatory Regime

- The Inquiry's Recommendations spell out the details of a "Robust Regulatory Regime"
- Good outcome defining as no previous inquiry has, the scope of a "Robust Regulatory Regime"
- Industry can be relied upon to push back
- The unconventional gas industry is at an early stage of Exploration
- Industry decisions to invest in production, and the rate of production development are in the future, and are not assured

- My concern is not about the validity of the “Robust Regulatory Regime” nor its intrinsic capacity to withstand Industry pushback.
- I am concerned about the capability of the government to progressively fund and develop to operational maturity the necessary resources (people, equipment and funding), structures, processes and interfaces with industry to match the growth path of a gas industry through stages of Exploration, Development, Production, Plugging and Abandonment and beyond.
- Application of the User Pays principle to fund the significant investment in a “Robust Regulatory Regime” may not be fair to early starters.

Technical Aspects

- I remain concerned about long term Well Integrity after Plugging and Abandonment
- Industry statements and regulator advice confirm that industry under current regulations has no responsibility for wells after P&A.
- Sometime between Completion and geological processes the cement seal between the outermost casing and the rock will fail resulting in loss of well integrity
- Industry has a vested interest in remediating loss of well integrity during Production
- With loss of well integrity, migration paths develop from the fracked reservoir to the surface and/or intervening aquifers
- ISO 16530-1:2017 refers to Well Integrity; Section 3.6 advises that “Once a well has been abandoned, there is little prospect of re-entering the well for any purpose.”

- I have enquired “Is gas released after abandonment and can it, and other contaminants, migrate upwards?”
- The answers I get range from “There is no gas left” through “Gas will rise, “to “Hydrostatic pressure will keep it down.”
- These examples of the diversity of opinion among experts indicates a degree of uncertainty which surely calls for application of the Precautionary Principle
- I submit that the Inquiry needs to consider the very long term consequences of loss of well integrity after Plugging and Abandonment
- As a green house gas (GHG) methane in the atmosphere is 86 times as effective over a 20 year span as Carbon Dioxide
- The world wide increase in methane emissions challenges the claim that methane can be regarded as a transitional fossil fuel between coal and renewables.

Economic Impact

The ACIL Allen report is:

- Unconvincing in that it follows the pattern of previous reports in:
    1. Placing emphasis on jobs and dollars attributable to an unconventional gas industry
    2. Assumes that pastoral, tourism and gas industries can coexist
    3. Assumes that after the gas industry departs, the affected communities and environment revert to their prior condition
- Most deficient as a source of information on net value to the Territory and communities to guide government decisions

- Fails to break down Full Time Equivalent jobs figures into Direct, Indirect and Induced for each of the phases of Exploration, Appraisal, Development, Production, and post Abandonment and Plugging.

Social Impact

In submission 530, I commented on the "*Report of NT Fracking Social Impacts | Beetaloo sub-basin case study Katherine (15 December 2017)."* Subsequently I have read the report of that session by Coffey and it seems that that my expectations of a Social Impact study differ markedly from those pursued by Coffey.

I believe the following points are relevant:

- A mechanistic approach which takes no account of the predispositions of the group/community being assessed is not likely to produce information on long term results
- The "impacts" considered are the initial impacts, the consequences of which are dependent on the characteristics of the affected group/community
- They are tangible, short term impacts whereas I consider an assessment of social impacts requires an examination of the social capital, an intangible asset, of the group/community and their resilience in dealing with long term permanent consequences
- With regard to Social Licence to Operate (SLO) the measures proposed by CSIRO are questioned. The treatment is theoretical and takes no account of the previous interactions between, in this case the government and industry as promoters of an unconventional gas industry and some members of the NT Community.

- Where there is an SLO deficit, I am mindful of the one to five rule which is that it takes 5 good interactions to offset one bad interaction

Summary

- Loss of Well integrity in the long term and migration of contaminants to the surface have very high probability
- Position of methane as a transitional fuel is being questioned
- Economic Impact report deficient
- Social Impact report follows a “development is good and inevitable” paradigm
- Low confidence that the government can develop and sustain a robust regulatory regime
- The technology mix of the unconventional gas industry processes from my engineering experience indicates technology overreach which when coupled with hubris is a predictor of failure
- The Inquiry is an example of Participatory Democracy
- Fracking is a contentious issue involving the Common Good and Public Interest well into the future
- The Political class is conflicted by their positions of Promoter and Regulator
- I submit that the question should be put direct to the people.

Errol Lawson
7 February 2018