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Submission #165

Hydraulic Fracturing in the Northern Territory – Feedback

Gas is a natural non-renewable resource humans have placed an increased demand upon due to the growing need for resources (Franks, Brereton, Moran 2010, p. 2). Hydraulic fracturing of the land poses significant risks to the environment which need further evaluation and I do not believe the enquiry has highlighted all of the possible risks. The following feedback outlines a more detailed insight into the risks associated with gas fracturing based on previous cases.

AIR POLLUTION

Table 7.3 Lists potential impacts on air quality. These were not properly examined or highlighted and need to be looked into further.

Air pollution from coal seam fracturing is emitted over an extended period of time following extraction methods, causing nitrous oxide emissions to be consistently released into the atmosphere. Methane, the main component of natural gas, is a volatile and more potent greenhouse gas than carbon dioxide, leading to changes in surrounding air quality. “Methane is a powerful greenhouse gas; up to 80 times more powerful than carbon dioxide emissions and a major contributor to climate change.” Methane is an invisible gas and isn’t properly monitored at current; it can only be detected using sophisticated infra-red cameras.” (http://www.abc.net.au/news/2017-02-28/methane-emissions-from-coal-seam-gas-climate-change/8310932)

Gas flares produce noise and disruption to the surrounding areas, and increase the levels of carbon dioxide in the air. Currently there are no requirements in place for the monitoring of this **(**Marzluff, Ewing, 2001). Surrounding community health is said to be ‘compromised’ around gas fields with claims from residents who reported skin rashes, nose bleeds and other respiratory complaints (QCA 2014). The NSW EPA reported a breach of a license by AGL – Camden for failure to conduct mandatory continuous monitoring of nitrogen oxide emissions from a gas plant south-west of Sydney since 2009 required by its license. The constant emissions raised nitrous oxide levels in the district by about 2 per cent in the surrounding areas, and the monitoring equipment was found to be broken down in October 2009 due to "vibration, contamination and high temperature" (Swayne 2012, p.13). Companies have been known to fail to monitor emission and publish data for extended amounts of time. Similar to this case in July 2014 the EPA issued AGL Upstream Investments Pty Ltd a penalty notice for $1000 for failing to publish monitoring data under ‘community right to know’ for almost four years (QCA 2014). The EPA requires a monthly summary of CEMS data to be published on the company’s website within 14 days of the last data being obtained for that month(QCA 2014). Without accurate reporting process being adhered to, the extent of the environmental impacts is difficult to assess in a timely manner. There has been no long term scientific studies into the impacts of coal seam gas fracturing in the long term. Methane leakage accidents have occurred in the past by different companies before and we cannot assure this will not happen again. There is no independent body monitoring methane emissions contrary to the views of it being a clean and transitional source of energy in the future.

WATER & CHEMICAL USAGE

Figure 6 in section 3.5 outlines some of the chemicals used, however currently there is no monitoring, especially in remote areas – there is a lack of transparency to the public.

One of the most significant issues of concern is the impacts of the coal seam gas industry on surface and groundwater systems due to the effects being “not well understood”(Swayne 2012, p.14). As stated by the National Water Commission (NWC), 2010, “if not adequately managed and regulated, the CSG industry risks having significant, long-term and adverse impacts on adjacent surface and groundwater systems” and “the potential for fracking activities to impact on the structural integrity of other aquifers and aquitards, and on existing groundwater flow processes, can never be completely eliminated” (NWC 2010, p.2). Groundwater flow can be altered and local water reserves can be contaminated if methane and chemicals spread to underground reserves or monitoring of storage ponds isn’t correctly adhered to (Rijke, 2013).

Permits are provided to companies for the release of wastewater, some of which is kept in storage ponds constructed specifically for them, or released as treated water into rivers or through irrigation to the site, however most of the time this is not adhered to (National Toxics Network 2013). A case was reported in 2012 from a CSG development that part of the Murray Darling basin that allowed wastewater to be released over 18 months at a maximum volume of 20 megalitres per day into the Condamine River. The permit listed over 80 chemical compounds including radionuclides and a range of persistent and toxic substances such as nonylphenols, chlorobenzenes, bromides, lead, cadmium, chromium, and mercury. There were no assessment requirements for the potential to contaminate or harm plants and animals prior to release (DNRM, 2013). Similar to this, a recent case of a 500 litre wastewater spill occurred at the Pilliga forest in NSW by Santos Gas Company and contaminated an aquifer. The water was described as “toxic” containing high levels of salts and heavy metals including arsenic, lead and uranium with affected fauna and produced soil contamination, uranium levels were twenty times higher than safe drinking water guidelines.

Drilling processes often go below the artesian water basins which can drain the surrounding water and pollute it with the chemicals used in extraction (CSIRO 2012). Rivers containing a large diversity of freshwater vertebrates can be affected including the fauna that use these water sources. During extraction, methane can leak from drilling sites, and studies have shown it can contaminate bores and water wells near gas wells (Swayne 2012). An analysis of 60 water wells near active gas wells in the United States (US) found most were contaminated with methane at levels well above US federal safety guidelines for methane (NTN 2012). The majority of water wells were situated within one kilometre or less from a gas well, and contained water contaminated with 19 to 64 parts per million (ppm) of methane (NTN 2012**).** In March and November 2010, **t**he EPA fined Eastern Star Gas Ltd $3000 for two cases of discharging polluted water containing high levels of total dissolved solids into Bohena Creek where a high diversity of threatened species exist (Sawyne 2012).

There needs to be an independent body monitoring the types and amounts of chemicals used in hydraulic fracturing. Australia, being the second driest continent on earth needs to carefully preserve its most precious resource. As per background and issues paper “an average of 20-30 megalitres is used per fracked horizontal well which equates to 6-10 olympic sized swimming pools”. This is a significant amount of water to be used which will put a further strain on domestic resident’s water usage and threaten the future of our water supplies.

Power and Water Corporation released information and public signage advising residential households to reduce their water consumption due to low rainfall during previous years in the

NT. We have not had significant wet season to replenish our aquifers and surface water systems which supply residents with water.

Let us learn from examples of other countries e.g. Texas where it has now been banned to due its toxic effects and investigate further into renewable energy sources.

Thank you for your time.

Yours sincerely,

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