Submission
No 347

INQUIRY INTO COAL SEAM GAS

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Coal Seam Gas Inquiry

Background

I live on a property near Casino, Northen NSW. My land is within a exploration area owned by Metgasco. They have been exploring and operating test flow gas wells in this area for several years. There are gas wells and associated infrastructure within a few kilometres of my house.

Around 18 months ago, the company performed blast and vibration seismology in my neighbourhood. They set off long lines of small explosions along the public road using blasting cable. A ground vibration truck or "Earthquake machine" set up in the property next to mine. The machine sent our strong tremors in the middle of the night that shook the windows. The next morning I discovered a large crack had opened up in the sandstone bottom of the creek that runs through my property. I found it after my dogs fell into it.

Since then I have been researching coal seam gas and it's effects on the environment and the social structure of small towns, rural and urban areas. What I have found is very disturbing to me.

Threat to water

Studies by the National Toxic Network Australia(1) found that naturally occurring BTEX chemicals, heavy metals and radioactive compounds are brought to the surface with the removal of the water in the coal seams. Releasing the pressure that holds them in place allows a largely uncontrolled migration along underground faults and fissures into adjoining aquifers. Hydraulic Fracturing opens more cracks and fissures increasing the risk of cross contamination of aquifers by further stimulating the migration of these chemicals. A study by Duke University found that methane migrates to nearby water sources during extraction.(2)

A large part of the drilling fluids and hydraulic fracturing chemical used in the extraction process are not recoverable and are left underground. Waste water treatment and storage is inadequate which causes further contamination of water sources.

1. Hydraulic Fracturing in Coal Seam Gas Mining: The Risks to Our Health, Communities, Environment and Climate - Feb, 2011.
http://ntn.org.au/wp-content/uploads/2011/02/NTN-Fracking-Briefing-Paper-2011.pdf
2. Methane contamination of drinking water accompanying gas-well drilling and hydraulic fracturing

http://www.nicholas.duke.edu/cgc/pnas2011.pdf

Waste Water

The gas mining industry cannot properly deal with the waste water created from coal seam gas extraction. It's usually kept in large dams where there is the risk of overflow during heavy rains and the risk of seepage into groundwater. The salt and chemicals are left behind after evaporation.

The region in which I live is called the "Northern Rivers". It's comprised of several water catchment areas with a vast network of interconnected rivers and streams. They wind around the proposed gas mining area. We have regular floods in this region as a result of normal seasonal variations. Large waste water dams are proposed for the flood plains just outside the nearby town of Casino.

Earlier this year, close to my property, a gas mine operated by Metgasco caused environmental damage and contamination of the nearby creeks by incorrect handling of waste water and drilling fluids by mismanagement and lack of maintenance of water holding ponds. Video(1) was taken of torn liners and overflowing drilling ponds and produced water holding dam. A subsequent newspaper(2) investigation elicited a guilty response from the company CEO however no action was ever taken.

1. http://www.youtube.com/watch?v=smP9tL_e3U8
Gas Chief admits fault
2. http://www.northernstar.com.au/story/2011/06/13/gas-chief-admits-company-at-fault-over-storage-pon/

Unsustainable Water Use

Massive amounts of water are used during the extraction of coal seam gas. This usage will compete with human and agricultural needs and deplete rivers and streams fed by groundwater sources.

Inadequate aquifer protection

Concrete well casings do not extend the full depth of the well, they are only relatively shallow, most of the well is not reinforced with concrete. On the way down to the coal seam, the drill will probably breach aquifers, faults and fissures. This makes completely casing the well in cement impossible and allows the uncontrolled migration of gas, water and chemicals between the gap in the edge of the well and the steel casing. Ground movement and normal breakdown could cause failures in the steel casing before and after the well has been abandoned .

Ross Dunn, CSG Communications Director for the Australian Petroleum Production and Exploration Association (APPEA) said that aquifers would be impacted. CSG activity "will to

varying degrees impact on adjoining aquifers. The extent of impact and whether the impact can be managed is the question"

The potential health impacts on people living in coal seam gas mining areas via water pollution are detailed in the submission of Doctors for the Environment Australia to the Senate. (1)

1. Doctors for the Environment Australia, Submission to Senate Inquiry into Coal Seam Gas, June 2011
http://dea.org.au/images/uploads/submissions/MDB_CSG_Senate_submission_June_2011.pdf

Threats to the air:

Gas flares are used to 'dispose' of waste gas and act as a safety system to manage excess gas pressure. Gas flares contribute significantly to local air pollution and greenhouse gas emissions. Hundreds of toxins have been identified as being released from flaring, venting and uncontrolled leaking including carcinogens such as benzopyrene, benzene, toluene and metals such as mercury, arsenic and chromium and various gases including carbon dioxide and methane. (1)

There are several gas mines in my area with constant flaring. When I stand on the road and view the wells I get dizzy and quickly feel unwell. The effects last for several hours after leaving the area. There are houses located very close to some of the wells, the people that live there report headaches, sickness and other illnesses since the wells went in.

1. The National Toxic Network paper Air pollution from natural gas development
http://ntn.org.au/2011/07/18/air-pollution-from-natural-gas-development/

Gas is dirty.

The Howarth study at the Cornell University (1) found that natural gas was worse than coal in regards to green house gas emissions when extraction, transportation and processing is considered. Professor Howarth agreed this study was also relevant to the gas industry in Australia. A subsequent Carnegie Mellon University (2) study using different calculations also found that natural gas was a significant contributor to green house gas emissions and while not quite as bad as coal, the creators of the study stressed that gas is still dirty and that methane emissions could be significantly reduced if drilling companies captured the gas from completed wells instead of flaring or venting it. They also said there are many other issues such as water usage, waste water management, mining and pipeline infrastructure and social impacts that needed to be studied further.

1. R. Howarth, R. Santoro, A. Ingraffea, "Methane and the Greenhouse Gas Footprint..." Cornell University, 12/4/11
http://www.sustainablefuture.cornell.edu/news/attachments/Howarth-EtAl-2011.pdf

2. Life cycle greenhouse gas emissions of Marcellus shale gas Caregie Mellon
http://iopscience.iop.org/1748-9326/6/3/034014/pdf/1748-9326_6_3_034014.pdf

Threat to food security

Coal seam gas extraction is a very inefficient process. The mining company needs to put in many wells above the gas reserve to achieve commercial flow rates. In NSW, there is a government royalty free period of five years for every new well. Higher profits will be realised by putting in as many wells as possible into any one reserve to extract as much gas as possible within the first five years.

Food production cannot be expected to survive in a region covered by gas mines, connected by roads, pipelines, compressor stations and power lines along with the associated heavy traffic, mine worker movements and dangerous emissions both above and below the ground. And who's going to buy beef or produce from a gas field when it's in the news constantly with leaking gas wells, overflowing ponds, fugitive emissions, well blowouts, angry farmers?

Social structure, local infrastructure

The Senate inquiry into Coal Seam Gas has found that communities in areas with gas mining have reported negative social impacts, damage to local infrastructure and unbalanced growth.

The type of mining in my region is not conducive to long term sustainable growth. The mines will employ fly in fly out workers who live, eat and sleep in temporary mining camps that are largely self sufficient. Only a very small part of the mining company budget is to be spent locally For economical reasons. Only a few businesses in town benefit from mining, this causes an imbalance in local commerce as is already happening in Casino which will result in less competition and unhealthy monopolies .

Protected areas, endangered and vulnerable species

There are currently 390 species, 5 populations and 18 ecological communities listed as endangered or vulnerable in the Northern Rivers region.(1) Metgasco has plans for a gas pipeline that will take gas to Queensland for processing into LNG and export. It goes over the Border Ranges through a world heritage listed area. There are other National parks and protected areas in my region that already have gas mining activity.

1. Department of Environmental Conservation NSW
http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/cma_home.aspx?name=Northern+Rivers

How to fix it

1. A full moratorium on all forms of coal seam gas drilling until the environmental, social and health impacts have been rigorously and independently assessed.

2. Coal seam gas exploration and mining to be made subject to all relevant environmental legislation, including the native vegetation and water management laws.

3. The provision of standing to ensure that the community has full legal rights to challenge and enforce environmental laws under which coal seam gas companies are operating.

4. The provision of a right in the Petroleum (Onshore) Act to allow landholders to refuse consent for coal seam gas exploration or production on their land.

5. All chemicals used in coal seam gas drilling or fracking must be assessed by the chemical regulator for use for that purpose before being approved for use.

6. A prohibition on coal seam gas exploration and mining in important bushland, valuable farmland, groundwater aquifers, residential areas and public lands. This includes the entire Northern Rivers region, including Richmond Valley Shire, Kyogle Shire and Clarence River Shire and all surrounds due to it's sensitive nature in regards to proximity of many rivers, flood plains, endangered species, beef, cropping, organic and other agricultural endeavours which are important for the food security of Australia.

Thank you for giving me the opportunity to express my concerns.

Dean Draper