Rivers SOS

18.7.11

Submission to the Senate Standing Committee on Rural Affairs and Transport

Re Inquiry into Management of the Murray Darling Basin: Impacts of mining CSG

The Rivers SOS Alliance is a network of 45 environmental and community groups around NSW campaigning to protect river systems from mine damage, Please see our web site for further details of our concerns and history: riverssos.org.au.

We were formed in 2005 with 13 groups concerned over the impacts of coal mining, both open cut and longwall. However recently with the rapid expansion of CSG mining, we are equally concerned with the impacts of CSG.

We are sending only a brief submission to you, as we became aware of your inquiry very late in the piece, as our covering letter demonstrates. We have been involved in commenting on developments in planning law and aquifer regulations in NSW, but we would appreciate your acceptance of this submission even at a late date.

We will not attempt to outline the technical processes of CSG extraction here, in the knowledge that other lengthy submissions to you have ample detail of the process of "fracking", waste water storage, cementing of casings, etc.

Our submission is primarily concerned with impacts on aquifers and river systems, therefore we omit other concerns such as health impacts.

1) Overseas Experience in CSG Mining

Fortunately we in Australia have the opportunity of learning from impacts of CSG mining on aquifers and rivers overseas.

In the USA thousands of complaints are now lodged with state and federal agencies by people impacted in various ways by CSG mining. In the Appalachian town of Dimock, for example, the water supply was contaminated by leaky gas wells, causing high levels of iron and aluminium in their aquifer, and illness in humans and pets. The EPA USA is researching impacts ahead of future federal legislation. New York State has meanwhile imposed a one year moratorium on fracking (6 June).

France banned fracking in May. South Africa has imposed a moratorium in one large region. A UK study (University of East Anglia) calls for a moratorium.

The new Coalition government of NSW imposed a 60 day moratorium on new coal or CSG exploration licences and is reforming aquifer interference regulations, hopefully taking CSG impacts into account.

We submit that these reactions prove that a) much more research needs to be done before moratoriums and bans can be safely lifted and b) there is enough alarming evidence concerning CSG mining impacts to cause a growing number of agencies around the world to call a halt.

2) **Sustainability of Aquifers**

Rivers are the life blood of every nation. Rivers depend on inflow from aquifers. Australia is the driest continent, with climate change already having an effect, an effect that will result in more severe droughts and higher temperatures. Therefore the protection of Australian river systems, especially the Murray Darling catchment, is of supreme importance to all.

CSG extraction has a number of destructive impacts on aquifers.

a) Cementing the wells: As wells are drilled, the drill will probably breach one or more aquifers before reaching the coal seam. The drill wells are then cased in a thin cement layer (cement plus water plus calcium carbonate). A lot can go wrong in the process of cementing a gas well. Faulty equipment, a botched mix, a failure to fill even a tiny crevice with cement, a minor – or major – earth tremor can all produce dire consequences. Added to this is the question of just how long cement casing will last before crumbling and collapsing. Such errors will cause saline water and toxic chemicals, oil and other wastes from the subject well to leak and to contaminate aquifers as at Dimock. And as at Tara in Queensland, where a government study found that 34 gas wells were leaking, and 5 of these were emitting flammable levels of methane gas.

The BP oil rig disaster in the Gulf of Mexico of April 2010 was, according to a National Commission report, the result of a faulty cement job: “cementing failures are not uncommon even in the best of circumstances.”

We submit that we must not gamble with this process near our major river systems.

2) **Water Usage in CSG Mining**

Huge amounts of water are necessary in the mining process, and this usage if expanded will compete with human and agricultural needs, as well as the need for rivers and creeks to be fed by their groundwater sources into the future. The user – the CSG company – gets the benefit but the rest of the population and the environment bear the cost.

A glaring example is the use of 30,000,000 litres of water per day taken from the Great Artesian Basin by the Olympic Dam. And while the GAB management plan (GABSI) is trying to reduce outflow by 200,000 ML p.a. to manage it sustainably, Queensland Gas Company plans to drill around 6000 gas wells in the Surat and Bowen areas of the GAB. A J.P. Morgan Report, 2010, estimated that in the Surat and Bowen basins between 125 – 350 gigalitres p.a. will be extracted.

The high water usage is unsustainable. Recharge processes in aquifers are slow and aquifers are already seriously depleted through use of agricultural bores and pumps, and through coal mine usage and now through rapidly expanding CSG mining.

As groundwater is extracted pressures in adjoining aquifers, underlying or overlying the coal seam, may fall and flows to rivers and streams and bores will be choked off. This can only result in the further degradation of the MDB and other river systems.

2) **Disposal of Waste Water produced in CSG process**

The water which flows up from the wells as the coal seams are depressurised is unfit for human consumption or even for agriculture. It may contain radioactive substances as well as salt and other toxic chemicals. There is a huge problem with its disposal. Often water is kept in large dams on site, where there is the risk of overflow in heavy rains, or the risk of seepage into the groundwater if the disposal dams are not lined. And if lined, how long will the lining last ?

And will the dams be adequately monitored for decades ? A Pennsylvanian Oil and Gas Association official was quoted in *The New York Times* as saying that "the waste that flows back slowly and continuously over the 20 – 30 year life of each gas well could produce 27 tons of salt per year." (27 Feb. 2011). As more gas wells are approved in the MDB basin, the impacts of the aggregation of salts over the coming decades could be disastrous unless transported off site – but where to ? Even if to the ocean, this is not without problems.

3) **Fracking Chemicals**

Although the Vice President of the Queensland Gas Company recently stated that fracking chemicals are "benign everyday ingredients" we submit that he can only assert this because there is a lack of precise information. As the Doctors for the Environment submission argues, only 2 of the 23 commonly used chemicals have been assessed by our National Industrial Chemical Notification and Assessment Scheme, yet there are already examples in the USA and in Australia where harmful chemicals have been found in groundwater subsequent to CSG exploration and mining.

The commonly used BTEX chemicals are therefore banned in many places, as we have noted. The fracking process may contaminate water with salinity, with gases or with BTEX where leakage occurs. Where fracking procedures intercept fissures or faults underground the bore casings may split. Toxic fracking fluids may contaminate water and move into other geological layers. The risks of accidents is magnified with the huge number of gas wells being installed.

4) **Moratorium until Adequate Research is Completed**

Every serious student of the CSG expansion calls for research. We will just cite the National Centre for Groundwater Research and Training (Flinders University) which states that water planning "requires far more knowledge of sub-surface water systems than is currently available ... decisions are being made using hydrogeologic conceptual models that can be grossly misleading." Precise impacts of CSG mining on the MDB and on the GAB are unclear and the National Water Commission has emphasised the urgent need for further research.

.We would like to see site-specific research carried out before exploration licences are approved and we would also like to see many more officials of local and national

agencies employed to monitor all gas wells and empowered to impose hefty fines where breaches occur.

But first of all, a moratorium of at least two years , forbidding CSG extraction anywhere in the MDB, must be imposed as a matter of urgency. This will allow just enough time for site specific studies to be carried out – one year is plainly insufficient.

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Web site: riverssos.org.au