

Submission
No 72

INQUIRY INTO WATER AUGMENTATION

Organisation: The Wilderness Society Newcastle

Date received: 14 August 2016

The Hon Robert Brown MLC (Chair)
Parliament House
6 Macquarie St
Sydney NSW 2000

8th August, 2016

Dear Sir,

RE: The Wilderness Society Newcastle Submission to the Inquiry into the augmentation of water supply for rural and regional New South Wales

This submission looks specifically at one aspect of the Terms of Reference that regards aquifer recharge. In particular this refers to sections:

1. That General Purpose Standing Committee No. 5 inquire into and report on the performance or effectiveness of the NSW government agencies that are responsible for the augmentation of water supply for rural and regional New South Wales, and in particular:

*b) examine the suitability of existing New South Wales water storages and any future schemes for augmentation of water supply for New South Wales, **including the potential for aquifer recharge;***

and due to the last remaining coal seam gas project in NSW being located in North West NSW and that aquifer recharge has been identified as one possible method of produced water disposal, then this submission also refers to section:

f) examine social, economic and environmental aspects of water management practices in New South Wales and international jurisdictions, including the following case studies:

iii. North Western NSW water management practices

The suitability of aquifer recharge using treated coal seam gas water is a highly contentious issue. It is generally considered most forms of reinjection are incompatible with native groundwater in Australia¹. The Waterlines report on 'Onshore co-produced water: extent and management states:

Aquifer recharge (i.e. returning co-produced water to geological formations) presents a range of issues such as geochemical incompatibility (when recharge waters mix with native groundwater) and locations of acceptable aquifers for CSG wells in Australia.

Aquifer recharge is widely used in the US but is mostly used at depths of ~3,000m where Australian wells are closer to 200-1000m. There are also a high number of abandoned wells in the US whereas

¹ RPS Australia East Pty Ltd, 2011, 'Onshore co-produced water: extent and management' Waterlines Report Series No 54, September 2011 p21

coal seam gas extraction in NSW is in its exploratory phase and is unlikely to go ahead at current oil prices².

In 2015 it was reported in The Land newspaper that the NSW Office of Water has been developing a 'Groundwater Return Flow Credits Scheme'. However news of this plan was slammed by NSW Farmers who stated "We don't support the government's potential plan to let extractive industries reinject water, let alone be given financial credit for reinjecting that water back into the aquifers"³.

The article also highlighted the risk of earthquake activity from aquifer reinjection and a US report that identified that the Federation of American Scientists investigated the impacts of aquifer reinjection and reported the technique could be behind the rapid increase in seismic activity in eastern and central states. The report, titled Human-Induced Earthquakes from Deep-Well Injection, found earthquakes of magnitude 3.0 or greater had increased threefold since 2009⁴.

We strongly object to aquifer reinjection in NSW as it is a high risk activity that may lead to contamination reducing the net volume of water available. We would also strongly push for greater transparency around the 'Groundwater Return Flow Credits Scheme'. It is concerning that in QLD responses to the CSG Water Management Policy review from gas industry groups were also pushing for 'a regulatory framework that indemnifies companies against any future issues that may arise from the injection of treated CSG water'⁵.

We would also like to raise the risks that coal seam gas extraction poses to sustainable water management in NSW.

As per the NWS statement on coal seam gas the potential risks to sustainable water management include:

- Extracting large volumes of low-quality water will impact on connected surface and groundwater systems, some of which may already be fully or over allocated, including the Great Artesian Basin and Murray-Darling Basin.
- Impacts on other water users and the environment may occur due to the dramatic depressurisation of the coal seam, including:
 - changes in pressures of adjacent aquifers with consequential changes in water availability
 - reductions in surface water flows in connected systems
 - land subsidence over large areas, affecting surface water systems, ecosystems, irrigation and grazing lands.
- The production of large volumes of treated wastewater, if released to surface water systems could alter natural flow patterns and have significant impacts on water quality and river and wetland health. There is an associated risk that, if the water is overly treated, 'clean water' pollution of naturally turbid systems may occur.

² <https://narrabrigasproject.com.au/2016/02/statement-on-santos-nsw-assets/>

³ <http://www.theland.com.au/story/3365960/aquifer-plan-risks-earthquakes/>

⁴ *ibid*

⁵ <http://www.gasfieldscommissionqld.org.au/resources/gasfields/csg-water-management-policy-review-submission.pdf>

- The practice of hydraulic fracturing, or fracking, to increase gas output, has the potential to induce connection and cross-contamination between aquifers, with impacts on groundwater quality.⁶
- The reinjection of treated wastewater into other aquifers has the potential to change the beneficial use characteristics of those aquifers.

Thank you for your consideration of this submission.

Yours sincerely,

Naomi Hodgson

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The Wilderness Society Newcastle

⁶ <http://www.nwc.gov.au/nwi/position-statements/coal-seam-gas>