

Groundwater Solutions International

(part of Gradient Ltd)

Andrea Broughton
Principal Hydrogeologist
115 Tasman Street, Mt Cook
Wellington 6021, New Zealand
|Tel| +64 4 801 9108
|Mob| +64 2 7474 3939
Email groundwatersolutionsint@gmail.com

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Economic Policy Scrutiny Committee
Legislative Assembly of the Northern Territory
Parliament House
Darwin, NT 0800

By email: EPSC@nt.gov.au

Dear Chair and Committee members,

RE: Submission on Northern Territory Water Amendment Bill 2019, Section 60A

I am a Hydrogeologist with 27 years working experience with NZ and Australian government agencies; environmental consultancies and currently as the Principal Hydrogeologist for Groundwater Solutions International (trading under Gradient Limited).

Thank you for the opportunity to make a submission on this Bill. Please note, I have only looked at the Bill with relation to Recommendation 7.8 of the NT Fracking Inquiry Final Report and how it compares with the drafted 60A of the Water Amendment Bill.

Based in my experience as a hydrogeologist, I submit that the Bill must be updated at Section 60A (2)(b) to read 'groundwater modelling' and not 'ground water monitoring'.

This is also consistent with Recommendation 7.8 of the Final Report of the NT Fracking Inquiry, which reads:

That the following measures be mandated to ensure that any onshore shale gas development does not cause unacceptable local drawdown of aquifers:

- *that prior to the grant of any further exploration approvals, the extraction of water from water bores to supply water for hydraulic fracturing be prohibited within at least 1 km of existing or proposed groundwater bores (that are used for domestic or stock use) unless hydrogeological investigations and*

groundwater modelling, including the Strategic Regional Environmental Baseline Assessment, indicate that a different distance is appropriate, or if the landholder agrees to a variation of this distance;

Consistent with this recommendation, please update Section 60A of the Bill to read:

60A Licence to take ground water for hydraulic fracturing

(1) This section applies in relation to an application for a licence, or a licence proposed to be granted on the Controller's own initiative, to take water from a bore if:

(a) the proposed beneficial use of water under the licence is petroleum activity that includes hydraulic fracturing; and

(b) one or more designated bores are located within 1 km of the bore.

(2) The Controller must not grant the licence unless:

(a) the owner of each designated bore mentioned in subsection (1)(b) consents to the grant of the licence; or

(b) hydrogeological investigations and groundwater modelling indicate that the activities under the licence will not have any adverse effect on the supply of water to any designated bore mentioned in subsection (1)(b).

This is because 'hydrogeological investigations' should cover/include groundwater monitoring. However, 'groundwater modelling' is the accepted method for determining likely future impacts of a groundwater extraction activity on bore users within a radius of 1km.

The groundwater model should use groundwater monitoring data to calibrate the groundwater model for transient state conditions to ensure sufficient confidence in the modelling drawdown predictions (as per Barnett et. al. *Australian Groundwater Modelling Guidelines, 2012*). If the NT Government relies solely on groundwater monitoring to determine whether there are groundwater impacts due to hydraulic fracturing, then by the time the impact is monitored, the problem has already occurred. By then it is too late to be prevented. This situation must be avoided. The Bill must be updated to be consistent with Recommendation 7.8 in the use of the term groundwater modelling.

I am happy to be contacted via email to discuss this submission further.

Yours sincerely,



Andrea Broughton BSc (Hons) Geology; MAppSc Hydrogeology and Groundwater Management
Principal Hydrogeologist
Groundwater Solutions International