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Department of Environment and Resource Management
Attention: Kel Roberts
Central West Region Water Services (Fitzroy Basin WRP)
P O Box 1762 Level
Rockhampton Qld 4700
By email: wprfitzroy@derm.qld.gov.au

Re: Submission on the draft *Water Resource (Fitzroy Basin) Plan 2010*

Dear Mr Roberts,

This is a submission on the draft *Water Resource (Fitzroy Basin) Plan 2010* (draft Water Resource Plan). This submission is authored by the Environmental Defenders Office of Northern Queensland, and the Environmental Defenders Office (Queensland) (EDOs). The EDOs are community legal centres that provide legal assistance to the public on environmental law.

The draft Water Resource Plan is commendable for its recognition of ecological outcomes. However, the EDOs are concerned that it does not make adequate provision for water quality. While flow rates are important, adequate water quality is also necessary for human and livestock health. With the rapid increase in coal seam gas mining in the Fitzroy Basin, water quality is an issue that cannot be overlooked in the Water Resource Plan.

Summary

- The EDOs commend the Department of Environment and Resource Management (“**DERM**”) and the Queensland Government for compiling the draft Water Resource Plan which provides a whole-of-basin approach to managing this important area. The draft Water Resource Plan provides a good balance between ecological and economic outcomes.
- The EDOs are concerned that the draft plan makes little reference to water quality. Water quality objectives should form a core part of the draft plan. In particular, risks to groundwater quality from coal seam gas mining needs particular attention.
- The EDOs strongly oppose the continued development of coal seam gas in the Fitzroy Basin. At present, there is little understanding of the impacts that Coal Seam Gas is having or will have on

the groundwater bodies and therefore extreme caution and further studies are required. Because of this uncertainty the Queensland government is unable to adequately manage the risks posed by the industry to the surrounding environment and we recommend that a moratorium be put in place preventing any further development of coal seam gas wells until the risks can be managed, if at all.

- However if the Queensland government insists on proceeding with this untested technology then the EDOs believe assessing the water quality risks to the Fitzroy Basin from cumulative development should be a key aim of the Water Resource Plan.

Strengths of the draft Water Resource Plan

Chapter 3 'Outcomes for sustainable management of water' provides a good balance between ecological and economic outcomes. It's important that the draft Water Resource Plan recognises the importance of maintaining the ecological health of the Fitzroy Basin to support economic and community use. Without adequate water flows and water quality, the basin will not be able to support the activity it does. As such, the existing objectives should retain the emphasis on the link between ecology and water use.

Lack of focus on water quality

The EDOs are concerned that the draft plan makes little reference to water quality. While the draft plan does address water flow, water quality is a separate issue that needs equal consideration. Simply ensuring good water flow won't guarantee good water quality or the health of the ecosystems that make up the Fitzroy Basin.

The different determinants of water quality were discussed in the reports DERM commissioned on environmental values: '*Establishing Environmental Values, Water Quality Guidelines and Water Quality Objectives for Fitzroy Basin Waters*'¹, and '*The economic and social impacts of protecting the environmental values of the Fitzroy Basin waters*'².

This issue is also discussed in the Fitzroy Basin Draft Water Resource Plan Overview Report at page 43. It was noted that the community reference panel considered water quality to be an important issue.

The EDOs also believe water quality objectives should form a core part of the draft plan. In particular, risks to groundwater quality from coal seam gas mining need particular attention.

¹ Department of Environment and Resource Management, 2010, '*Establishing Environmental Values, Water Quality Guidelines and Water Quality Objectives for Fitzroy Basin Waters*', State of Queensland, Brisbane.

² Marsden Jacob Associates, 2010, '*The economic and social impacts of protecting the environmental values of the Fitzroy Basin waters*', Marsden Jacob Associates, Brisbane.

Risk to groundwater quality from coal seam gas mining

As noted on page 9 of *'The economic and social impacts of protecting the environmental values of the Fitzroy Basin waters'* (Marsden Jacob Report), coal seam gas mining is reported as increasing at a rapid rate within the Fitzroy Basin. On page 42 that report suggests that the risks to groundwater quality from coal seam gas mining have not been properly considered:

'Consultation and analysis to date has been largely silent with respect to groundwater quality. Given the region's reliance on groundwater and the potential risks to groundwater from activities such as coal seam gas developments, it would seem prudent to establish robust policies and procedures to manage this risk.'

There are five different risks to groundwater quality from coal seam gas mining. These risks are taken from the 2010 report published by J.P. Morgan *'Water Concerns: QLD Coal Seam Gas Developments Report Summary'*³ and are outlined below.

1. Water table cross-contamination

If coal seam gas wells are poorly constructed, lower quality water from coal seams may enter higher quality aquifers near the surface through the well. However, the likelihood of this risk is low if the wells are steel and lined with concrete.

2. Contamination from drilling chemicals

In some cases it is necessary to use drilling chemicals to fracture the coal seam beds to extract gas via the wells, this process is known as 'fracking'. This has caused substantial environmental harm in the United States of America where the chemicals used have typically had little controlling regulation. There is concern that this damage may be repeated here in Australia. While some of the polluted water is extracted via the well, some remains in the groundwater and has been shown to migrate into other ground water supplies, including drinking water.

Recent legislative amendments in Australia have banned the use of some of the problematic chemicals. However, the effectiveness of these regulations in ensuring overall groundwater quality is still untested.

3. Gas migration to water bores

Gas can migrate from gas seams to water bores if the gas wells are not appropriately designed. This risk can be reduced by well design that keeps gas separate from aquifers.

³ Garry Sherriff, Benjamin Wilson & Jason Steed, 2010, *'Water Concerns: QLD Coal Seam Gas Developments Report Summary'*, J.P. Morgan Securities Australia Limited, Sydney.

4. Treatment, disposal and storage of water, brine and salt

Coal seam gas mining produces large quantities of saline water. The Queensland Government currently favours reusing this water (either treated or untreated) or injecting it back underground. The EDOs do not think either of these methods adequately alleviates the threats this water poses to the surrounding environment. Injection of this waste underground may be a risk to aquifers if not appropriately controlled.

5. Cumulative impacts from multiple projects

Current groundwater quality monitoring has focused on short term impacts of each individual development. There has been little consideration of long term, cumulative impacts from multiple projects. Given the rapid increase of coal seam gas mining projects in the Fitzroy Basin, this presents a long term risk that is yet to be assessed.

Suggested policies for managing the groundwater quality risk

The EDOs strongly oppose the continued development of coal seam gas in the Fitzroy Basin because of the 5 above mentioned risks. At present, there is little understanding of the impacts that Coal Seam Gas is having or will have on the groundwater bodies and therefore extreme caution and further studies are required. Because of this uncertainty the Queensland government is unable to adequately manage the risks posed by the industry to the surrounding environment and we recommend that a moratorium be put in place preventing any further development of coal seam gas wells until the risks can be managed, if at all.

The largest risk to water quality in the Fitzroy Basin from coal seam gas mining is risk 5: cumulative impacts from multiple projects. Page 11 of the Marsden Jacob Report notes that coal seam gas will be a very significant source of economic growth in the short to medium term.

The expansion of the coal seam gas industry in the Fitzroy basin is not accounted for in the current monitoring. Each project's pollutant load is monitored on an individual site scale at present. However, whole-catchment scale data is unavailable.⁴ Referring to 'EVs' (environmental values such as water quality) The Marsden Jacob Report recommends that this be rectified:

'Enhancing this information is vital as, without a better understanding of the relative risks to EVs posed by different sources of pollutants from all point and diffuse sources, there is a risk that interventions can be poorly targeted and may be inadequate/excessive to meet WQOs (particularly when cumulative impacts are considered).'⁵

The EDOs strongly oppose the continued development of coal seam gas in the Fitzroy Basin. However if the Queensland government insists on proceeding with this untested technology then the EDOs believe assessing the water quality risks to the Fitzroy Basin from cumulative development

⁴ Marsden Jacob Associates, p 12.

⁵ Marsden Jacob Associates, p 13.

should be a key aim of the Water Resource Plan. Therefore, we suggest the following amendments to the draft Water Resource Plan:

1. Make specific reference to maintenance of groundwater quality in section 15: specific ecological outcomes.
2. Introduce a new part addressing water quality in Chapter 4: Performance indicators and objectives.
3. Introduce sections in Chapter 4 specific to monitoring groundwater quality on a catchment-wide scale. The monitoring standard must aim to ensure there is no degradation in groundwater quality from coal seam gas mining.
4. Introduce sections in Chapter 4 specific to long term groundwater modelling. The modelling should focus on the assessment of risks as coal seam gas projects are progressively developed.
5. Chapter 4 should introduce a requirement for water bore testing and monitoring. This should be undertaken by the proponent and supplied on DERMs website so that members of the public can easily access the information.
6. Flow simulations conducted under the draft plan should bear in mind the risk to aquifers from long term movement of water from coal seam gas beds where mining has been employed.

We trust that this submission was useful. If you have any questions on this report please contact the Environmental Defenders Office of Northern Queensland.

Yours faithfully,



Patrick Vuleta
Solicitor
**Environmental Defenders Office of Northern
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Sarah Wilson
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