



## Queensland Murray-Darling Committee Inc.'s Submission on the Guideline for Underground Water Impact Reports and Final Reports

30 November 2011

### Submission to:

Underground Water Impact Report Guideline Consultation  
Energy Resources  
Environment and Natural Resource Regulation  
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This submission is presented by the Chief Executive Officer, Geoff Penton, on behalf of the Queensland Murray-Darling Committee Inc. (QMDC). QMDC is a regional natural resource management (NRM) group that supports communities in the Queensland Murray-Darling Basin (QMDB) to sustainably manage their natural resources.

### 1.0 Background

QMDC's response to the proposed guideline for Underground Water Impact Reports and Final reports (UWIR guideline) is directed by community aspirations and NRM targets identified in the Regional NRM Plan. QMDC has also made numerous submissions to relevant government agencies on draft TOR, EIS, EA applications and proposed CSG water management policies and procedures seeking the development of best practices for the CSG industry.

Additional to the Regional NRM Plan, this submission is also informed by QMDC's revised mining and energy policy. This policy document has been prepared by QMDC in consultation with those communities, organisations and stakeholders QMDC is working with in the region. QMDC is currently reviewing this policy and consulting with QMDB communities, organisations and stakeholders to ensure the policy reflects QMDC's growing knowledge on CSG mining activities, infrastructure, and impacts.

QMDC's has therefore been actively working over the last 3 years with DERM and the CSG industry to reach agreement on future actions needed so that CSG mining activities and associated infrastructure will avoid adverse impacts whether site specific or cumulative on groundwater, springs and groundwater dependent ecosystems.

UWIR Guideline

Submission



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These natural assets are identified by the Regional NRM Plan as being at risk to the impacts caused by CSG mining activities.

QMDC supported the relocation and expansion of the existing regulatory framework for managing the groundwater impacts of the petroleum industry from the *Petroleum Act 1923* and *Petroleum & Gas (Production and Safety) Act 2004* (Petroleum Legislation) into the *Water Act 2000* (Water Act).

QMDC however still believes mechanisms by which the currently amended Water legislation attempts to deliver on the commitment in the LNG Blueprint to protect groundwater resources are both commendable and inherently flawed.

QMDC continues to assert that legislation that allows a petroleum tenure holder's right to take unlimited groundwater should be amended. Any use or extraction of groundwater must be managed to not only protect bore owners and natural spring ecosystems which are comparatively vulnerable in these circumstances but also to protect the QMDB, and the Great Artesian Basin (GAB). The tenet that water is consequential to the extraction of petroleum or gas allows for unsustainable practices that should not be perpetuated in light of this region's current state of environment.

QMDC submits that the UWIR guideline should promote and encourage sustainable use of GAB water and ensure that practices relating to the exercise of water "rights" by CSG and petroleum projects will ensure high-quality stewardship of GAB resources; minimise disturbances to GAB resources; and protect GAB resources for future human and environmental purposes.

On this basis QMDC urges DERM to strengthen the UWIR guideline to ensure it provides:

- Best practice responses to the specific impacts of CSG operations and activities;
- Best practice responses to the cumulative impacts of the CSG mining industry;
- Alignment with Regional NRM Plans and other relevant regional policies and plans;
- The CSG industry clear guidance on how it must primarily avoid impacts or risks on the region's groundwater resources and ecosystems; and
- Long term effective management or mitigation strategies for the region's groundwater resources and ecosystems.

## **2.0 Specific comments**

### **2.1 Timeframes as per sections 2.4; 3.1.1; 3.1.1.2; 3.1.3; 3.1.5.6; 4.1; 5(3)(e)**

Community engagement, disclosure of information and public consultation must meet community expectations for a more enduring and direct role in the planning, decision-making and implementation of natural resource policies and activities as they relate to CSG mining projects.

The timeframes proposed in each of the above sections are not supported by QMDC and need changing to ensure timely and adequate reporting, particularly to individual landholders, local governments and communities where the development and associated developments have the potential to impact on the planning and resourcing of supporting infrastructure, services, groundwater and land use.

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QMDC submits that public engagement that is timely, meaningful and relevant and conducted appropriately for each stakeholder will encourage and facilitate active public consultation. This also includes public notification and consultation for any proposed changes to reports or monitoring strategies. QMDC recommends that the notification period as per **section 5(3)(e) at p.14** should be increased to at least 28 days.

QMDC suggests that a 3 year time period (**see sections 3.1.1; 3.1.1.2; 3.1.3; 4.1**) is not a safe time duration to measure extraction on the grounds that:

- Time frames for impacts may be longer than those presented in model outputs – ie decades to centuries rather than the years to decades described in economic, production and impact assessments presented in public forums. Even if impacts are likely to be over extended periods, the public deserves to know what the likely impacts are so they can assess the merits of ongoing development.

QMDC believe that a UWIR needs to be submitted sooner than the assigned 14month period as per **section 2.4 at p.4** in order to ensure potential impacts that can be avoided are at the earliest opportunity. QMDC recommends a 6 month timeframe. Additionally a 3 monthly reporting timeframe is deemed more reasonable as per **section 3.1.5.6 at p.13**.

## **2.2 Section 3 Underground Water Impact Reports**

### **2.2.1 Threshold Limits**

The Water Act framework although it will manage impacts on water supply bores and springs from the extraction of groundwater by coal seam gas and petroleum tenure holders, should also clearly define when activities or the level of impacts affecting groundwater resources and other sources of water is too high, requiring a threshold to be met. QMDC recommends the inclusion of a threshold limit approach in a UWIR. This approach would provide greater clarity and certainty because thresholds limits would help to define those natural resource assets identified as being both nationally and regionally at risk to the impacts caused by activities and infrastructure associated with the CSG industry.

Setting threshold limits for springs and groundwater dependent ecosystems will help the Act to identify whether a new development or existing industries or businesses can operate without causing unacceptable impacts on those assets within the defined threshold limits.

The Act will then be able to define and provide for:

- “no go” zones;
- clear and predetermined standard environmental practices acceptable under legislation e.g. safe underground water extraction; and
- efficient administrative processes.



This will mean that activities where the impacts are known to exceed the trigger threshold limits and cause decline for stock and domestic or irrigation supply bores, and which will impact on groundwater quality, quantity and pressures in the Great Artesian Basin in relation to its associated springs, will not be permitted.

Threshold limits should also consider pollutant concentrations and discharge volumes and be set so that unacceptable pollutant load risks are not permitted for both individual site and cumulative impacts of the whole CSG industry on aquifers.

### 2.2.2 Low risk

QMDC is concerned, that the UWIR guideline, does not apply where there is very low risk to bores or springs. QMDC seeks clarification on who determines “very low risk status” and does this include medium and long term risk? QMDC is also concerned that water quality may be determined on an assumption that all bores are perfectly constructed and maintained. QMDC would argue that in reality it is likely that approximately 10% of bores may have problems at some time (an opinion based on conversations technical staff have had with drillers and hydrologists). QMDC recommends that mining bore density should be a factor in risk status.

110 bores in the Gubberamunda and Springbok Sandstone aquifers have been identified by Origin’s own assessment of the cumulative impact (not included in their EIS) in relation to Origin tenements as currently or likely to be impacted exceeding the state trigger thresholds (Origin presentation to QMDC on 15 July 2010).

Results of modelling presented by CSG companies have indicated that the removal of water from the coal seams will generally have no significant effect on the quantity or quality of water in overlying aquifers. Specifically there is no indication of a risk associated with inter aquifer water transfer due to CSG activities. It is suggested that this is not a safe assumption on the grounds that:

- Time frames for impacts may be longer than those presented in model outputs.
- Modelling presumes initial and ongoing integrity of all aquifers and aquacludes.

The initial integrity and homogeneity of geological structures should be increasingly better informed by ongoing drilling information. It is important that this information is reviewed regularly from a system integrity risk angle as well as from economic/production perspectives.

QMDC supports a requirement that risks associated with aquifer and aquaclude integrity being compromised by drilling, fracking and repatriation activities be accounted for in modelling and reporting. It is now public knowledge that aquifers neighbouring the coal seams were compromised by CSG activities and that remediation only occurred after public alerts were raised. It must be assumed that aquifers have been compromised on other occasions but that they have been undiscovered, undisclosed, or possibly, remediated without public disclosure.



With the number of holes to be drilled in the region it is worth acknowledging and quantifying the risks to groundwater quantity associated with aquifer and aquaclude integrity being compromised by drilling, fracking and repatriation activities.

QMDC does not support as a management or mitigation strategy the re-injection of associated water into aquifers because it has not been able to be done successfully during current trials and there is no peer reviewed scientific data or certainty that there will be no impact to the water quality of receiving or other connected aquifers.

In areas where the controversial hydraulic fracturing (fracking) process is used, there is serious and unquantified risk of groundwater being contaminated, either by fracking fluids, by saline associated water contaminated with the chemicals naturally present in the coal seam entering a freshwater aquifer, and / or by the gas itself.

QMDC recommends that anywhere fracking is to be undertaken it should not be eligible for “very low risk status” due to the inherent increased risk of inter aquifer (vertical) transfer.

### **2.3 Section 3.1 Completing an Underground Water Impact Report**

QMDC does not support reducing required inclusions for UWIRs for the scenarios described in Table 1.1 and 1.2. QMDC believes this opens up the door for the CSG industry to opt out of its legal and moral obligations to ensure the sustainable use of natural resources which will allow future generations the same rights to water resources as we enjoy today.

### **2.4 Section 3.1.2 Part B: Aquifer Information and Underground Water Flow**

QMDC asserts that this should include water level and water quality risk assessment based on the possibility of inter aquifer transfer due to bore construction, operations or rehabilitation problems. QMDC argues that if, for example, 10% of bores cause leakage between aquifers the consequence of such leakage needs to be included in Part B of the UWIR.

### **2.5 Section 3.1.2.1 Aquifer Descriptions**

QMDC recommends that aquifer descriptions should refer to (evolving) Healthy Waters Management Plans (HWMPs) for the area, with aquifer mapping based on hydrogeology and ionic chemistry analyses.

### **2.6 Section 3.1.4 Part D: Water Monitoring Strategy**

QMDC submits that it should be a mandatory requirement that all CSG companies use a set monitoring and data collection methodology that is independently reviewed and regularly evaluated against community values and regional guidelines on, for example, water quality.

QMDC recommends the requirement to provide timely public access to monitoring data. This should include compliance with evolving national water monitoring metadata protocols and provision of data to an organisation that will upload it to the Australian Water Resources Information System in the long term but provision of public access by other means in the short term. However in order for this to be valuable it requires statutory timeframes that allow for real time public disclosure and consultation.

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Monitoring plans are integral to best environmental management practice and require independent access to monitoring data and development and conformity to local water quality guidelines. QMDC supports the use of UWIR to assess the plethora of data currently being collected by CSG companies (which dwarfs the currently available public data) to assist the assessment of norms for water quality and aquatic ecosystem health condition and trend assessments.

#### **2.7 Section 3.1.4.1 Rationale**

QMDC recommends that gaps in data should include those identified in HWMPs.

#### **2.8 Section 3.1.5 Part E: Spring Impact Management Strategy**

QMDC recommends using the term “springs and groundwater dependant ecosystems (GDEs)” rather than just “springs”. All sections should refer to available GDE mapping and conceptual models together with information and risks from **section 3.1.2 at p.6**.

#### **2.9 Section 3.1.5.3 Spring Values**

In this section and anywhere where ANZECC guidelines are mentioned, a clause of “or relevant local water quality guidelines documented in HWMPs under QG’s EPP (water)” should be added as these take precedence over ANZECC guidelines if established.