



QMDC's submission on the Draft Underground Water Impact Report Surat Cumulative Management Area May 2012

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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 internal policy, *Policy for the Queensland Murray-Darling Basin - Mining and energy industry impacts on natural resources in the Queensland Murray-Darling Revised Final Draft 2011* (the QMDC Mining and Energy policy) provides a framework for QMDC's submission on the *Draft Underground Water Impact Report May 2012* (the UWIR). The policy was drafted by QMDC in consultation with the communities, organisations and stakeholders QMDC is working with in the region. Its purpose is twofold:

- to address the impacts of the mining and energy industry on the QMDB's natural resources; and
- to provide a framework for best practice and policy decision-making, risk management and responses to the specific and cumulative impacts of the industry on the QMDB's natural resources.

QMDC's overall aim is that mining activities and associated infrastructure will avoid adverse impacts whether site specific or cumulative on surface water, aquatic ecosystems, groundwater, springs and groundwater dependent ecosystems. Where impacts cannot be avoided, they must be minimized and if they occur the resource must be able to be fully rehabilitated.

This document is also informed by QMDC's submissions on the *Water and Other Legislation Amendment (WOLA) 2010 Exposure Draft Bill* and the *UWIR Draft Guidelines*. QMDC continues to take the position that a petroleum tenure holder's right to take underground water as part of their authorised petroleum activities is inherently flawed because that right has no limit placed on it. In QMDC's opinion, 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.

Draft UWIR

Submission



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QMDC asserts that 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 whole Great Artesian Basin (GAB). QMDC supports the Queensland Government's commitment to provide a higher level of management for groundwater resources.

2.0 General comments

QMDC recognises the formidable task that the Queensland Water Commission (QWC) has to acquire adequate information to provide a high level of confidence in decision outcomes. QMDC commends QWC on their efforts to produce a report that attempts to meet not only statutory obligations but also aims to address community concerns.

QMDC applauds QWC for the UWIR's comprehensiveness in collating and presenting past information, data and reports. It provides a good basis for the community to understand the Surat underground water system, the dynamics of this system, factors that are likely to cause impact and suggestions for mitigating these impacts. It also identifies on-going areas of uncertainty. The characterisation of the region as outlined in Chapters 2 to 5 provide the necessary contextual background.

QMDC is of the view though, that despite the good work presented in this report, support is provided with the following caveats:

1. Most of the data is at a regional scale. Model applications should be adaptive and refined as new more localised data becomes available. In particular, as water extractions continue, threshold levels should be reviewed and changed as necessary.
2. The regional characterisation provides a good basis for identifying potential impact. It however only addresses the biophysical groundwater impact. The precautionary principle still holds. A strong quantification on the basis for trigger threshold is required both in terms of data and past experience.
3. There is a need to localise the systems further. Characterisation of the region needs to be localised with more specific data as it becomes available.
4. Socio-economic impacts will provide another layer of characterisation that needs to be considered once localised analyses are undertaken of the bio-physical attributes.

QMDC appreciates that with increased local and regional knowledge, better informed science and improved industry practices, impacts may be avoided, managed, mitigated or rehabilitated appropriately in the future.

Overall, QMDC has found the UWIR to be a good platform from which to assess the Surat Cumulative Management Area. QMDC submits that based on its current findings there is a basis to make decisions on current development proposals that take into account identified groundwater impacts to bores and spring complexes.

QMDC also sees the need for QWC to further analyse its findings against a wider range of information, data and research in order to ensure their integrity. QMDC, therefore, believes the development of the “make good” threshold approach informed by a wide range of data and research would provide greater clarity and certainty for the limits that must be placed on unacceptable underground water impacts.

The Healthy Water Management Planning (HWMP) process, for example, should result in water quality thresholds for surface water and groundwater zones. QMDC recommends that the QWC ensures the threshold approach transposes across to water quality with particular reference to evolving HWMP. The water quality link is particularly important in the consideration of risk of inter aquifer connectivity associated with CSG mining (See inter aquifer connectivity discussion under baseline assessments in [section 3.7](#))

QMDC urges the QWC to facilitate a policy debate as part of their management recommendations considering the notion of establishing a threshold limit beyond which “make good” is not an acceptable management option.

Threshold limits would help to define those natural water resource assets identified as being nationally and regionally at risk to the impacts caused by activities and infrastructure associated with all industry, commercial business and domestic water resource use on the GAB, the Surat and Bowen Basins, and the associated alluvial systems, and aquifers.

QMDC recognises that QWC has advanced the use of modelling and monitoring data across tenures to come up with the best available estimate of impacts of CSG related water extractions on water levels or pressure heads for existing bores and aquifers.

QMDC is concerned that the Water Monitoring Strategy only addresses “basic water quality” (See pp. xv). Including more extensive monitoring of water quality within the scope of the UWIR will enhance regional capacity to identify areas of concern for water quality based on impacts of extraction on volumes in production aquifers. A threshold limit approach would enable QWC to also consider set pollutant concentrations and discharge volumes so that unacceptable pollutant load risks would not be permitted for both individual site and cumulative impacts on aquifers.

QMDC suggests the UWIR refers to DERM Baseline assessment Guidelines at http://www.derm.qld.gov.au/environmental_management/coal-seam-gas/pdf/baseline-assessment-guideline.pdf with all the monitoring sites to establish baseline values and ongoing testing for parameters in Table 3 (Minimum requirements for field parameters and laboratory analytes). QMDC also recommends that at least one reference site/bore for each water quality zone (as identified in pending HWMPs) be established where additional parameters listed in Table 4 (Suggested additional water quality analytes for baseline assessment) also be assessed and **monitored**.

With the predicted 40,000 wells to be drilled in Queensland, 7,500 production wells alone in the QMDB for the Surat Gas Project (Refer: Arrow’s EIS for the Surat Gas Project Volume 1, Chapter 5; Section 5.2.1 Production Wells; p 6) it is urgent that the cumulative impacts and risks to groundwater quantity associated with aquifer and aquaclude integrity being compromised by drilling, fracking and repatriation activities are quantified. This type of information needs to be accounted for in modelling and reporting on aquifers and regional water sources.

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Drilling data collated to inform the UWIR should be able to illustrate the initial integrity and homogeneity of geological structures. It is also important that this information is reviewed regularly from a system integrity risk angle as well as from economic/production perspectives.

2.1 Recommendations

That the UWIR provides a more robust position on:

- **Best practice responses to and controlling provisions for the specific and cumulative impacts of CSG mining operations and activities by analysing the key findings of the UWIR against a wider range of information, data and research;**
- **A threshold limit approach to cumulative impacts;**
- **Water quality impacts;**
- **Data collection and system integrity risk assessments;**
- **How the CSG industry must primarily avoid impacts or risks on regional water resources and ecosystems; and**
- **Long term peer reviewed effective management or mitigation strategies for regional water resources and ecosystems.**

3.0 Specific comments

3.1 Key findings and recommendations on impact management strategies

QMDC believes the UWIR needs to provide a specific section outlining *Key findings and recommendations*. Findings and recommendations should be specific to the subject areas listed below:

- Influence of geologic structures (See p.37)
- Uncertainties (See p.46)
- IAA (See p.53)
- LAA (See pp.55, 56)
- Threshold limits
- Management and mitigation recommendations

3.2 Referencing key information & external data relied upon

By referencing key information and external data the UWIR relies upon to draw its conclusions illustrates linkage between historical and current research and the ongoing development of scientific knowledge and understanding. Although key references are listed in *Section 11*, linking studies and research documents as footnotes to the main text will facilitate confidence in the integrity of the UWIR findings and conclusions.

QMDC suggests that the development and application of ecologically sustainable management should underpin the key information and external data relied upon by QWC. The rural communities and member organisations QMDC represents view “best available knowledge” as providing the UWIR with *community based processes*; where, for example, Aboriginal communities and land care groups and other key community organisations are



empowered to direct the scope of the information on the basis of their specific local knowledge and experience. This is lacking in the current draft.

Below are some text examples where QMDC asserts conclusions were drawn referring to external data but cross referencing to studies, research, or monitoring data is not offered to justify why such conclusions were reached. QMDC believes readers should be given the opportunity to research such sources of information should they wish to.

- Predicted 50% recovery, 30 to 50 years after maximum impact (p.xv)
- Water level impacts on spring complexes (p.xvii)
- DNRM & QDEX records (p.7)
- Interconnectivity (p.35)

3.3 Providing peer reviews in Appendices

Providing peer reviews and their conclusions or at the very least referencing them as per the above comments would show how the QWC is building on historical and current research to advance the region's scientific knowledge. *Best available science*; where definitions and criteria are based on peer reviewed scientific research would enable readers to consider the UWIR in terms of its saliency, credibility and legitimacy, namely whether the UWIR addresses legislative and policy relevant questions; whether the science relied upon meets standards of scientific rigour, technical adequacy, and truthfulness; and finally whether the science fair and politically unbiased. See, for example, the UWIR's discussion on models used for predictions (p.45).

3.4 Placing more importance on economic values versus balance of ecological, social and economic values

QMDC is concerned that the tone and text of the UWIR seems to place more importance on economic impacts rather than taking a more holistic approach to impacts.

3.5 Terminology

QMDC asserts the inconsistency of the terminology used in the UWIR creates unnecessary "uncertainty" or bias towards to the petroleum and gas industry. QMDC recommends a review of the terminology and language used in the UWIR to promote technical and academic fluency and consistency. See below examples:

- Use of words – "will", "may", "is likely" "unlikely". QMDC asserts predictions need to be referenced. The absence of references in the UWIR makes it difficult to link research, monitoring data and science to QWC's conclusions.
- Interchanging the words "production" and "extraction" when describing the extraction of CSG water is not appropriate and misconstrues the CSG activities permitted under the P&G Act.
- Different terms used to measure impact in some sections of the text – "less than"; "more than"; "up to" (See pp.xiv & 56) instead of a clear reference to trigger thresholds and scales associated with those thresholds
- Development wells (p.9) – what type of wells are these, are they pilot and test wells?
- Using general/average estimates (pp.xv,19, 48, 51). QMDC is interested in data that measures impacts in relation to anomalies and complexities of aquifers, spring

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complexes, geological structures etc. Generalising and providing predictions based on average estimates do not in QMDC's opinion provide a framework for decisions based on best available science.

- “Meaningful water level falls” (p.32) Using the descriptive word “meaningful” opens the door for contentious interpretation. QMDC recommend defining water level impacts consistent with statutory definitions.
- “Most of” this water (p.39). What volumes of water are included in this description?
- Non-P&G users (p.39). Rewrite the sentence so as to not promote the P&G industry as the primary reference group, e.g. “*Users of groundwater in the area are agriculture, industrial, urban, S&D, and P&G.*”

3.6 Timing of impact and maximum measure of impact

QMDC believes QWC need to include in their glossary a definition of what the UWIR considers is a ‘maximum impact’ and qualify their prediction with regards to the timing of impact, and the 50% recovery for the Walloon Coal Measures, Springbok Sandstone and the Condamine Alluvium, 30 to 50 years after impact. (See p.xv *Timing of Impacts* & p.56).

QMDC would like to see more justification around recovery rates, maximum impacts and cumulative impact scenarios related to the supposed ending of the industry. QMDC would also like to see some discussion around issues and impacts that may evolve should a new industry come on board and what affect this may have on those predictions.

QMDC seeks information on which “expansion projects” are not included in predictions and why? (See p.58)

What are the “make good” options between the end of the industry and the predicted recharge life?

3.7 Water Monitoring Strategy

Independent review: QMDC asserts that a key component of the Water Monitoring Strategy (WMS) should be an independent review of the WMS.

Monitoring parameters and frequency: QMDC believes water quality installation samples should be taken on a more frequent basis than the proposed half-yearly. The frequency and parameters should be dependent on operations and site specificity. In the areas where the predicted impacts are higher frequency should be increased.(See p.65)

Monitoring points: QMDC submits the following information needs to be provided – why a number of 498 monitoring points was reached to establish a regional network; how many of these points are controlled by CSG companies and are therefore self-regulated; when will the 392 new monitoring points be operational; what has the lack of strategic monitoring points meant for the integrity of this UWIR and its findings; where are the existing monitoring gaps; and is/will all the data collected from the existing and future regional monitoring network be publically available (See pp.xvi, 59 & 60 on the network of monitoring points).



Water levels, water quality and interconnectivity issues: QWC refers to differences in water levels and water quality between the Walloon Coal measures and the Condamine Alluvium as an indicator of the interconnectivity between them (See p.29). QWC further states that even though there are water level differences “there has not been a widespread deterioration in water quality in the Condamine Alluvium” and concludes that there is a “relatively small” flow between the formations, suggesting interconnection is “not strong”. QWC at p.28 however states that there “is little monitoring data to assist in understanding the interconnectivity between the formations”. QMDC believes the UWIR needs to make less ambiguous statements and apply the precautionary principle where water levels, water quality and interconnectivity issues (See pp.29) converge and there is not enough real data to be certain about predictions or risks and impacts. QMDC would argue that at the very least where there is a known convergence of such issues or likelihood water quality installations samples should be taken more regularly than on the proposed half –yearly basis (See p.65).

Objectives: (See pp.59 & 60)

- Objective 2: What distances are being measured in regards to areas within and near petroleum developments?
- Objective 3: Are monitoring sites proposed for these areas and who is responsible for these strategic sites?

Baseline assessments: (See pp.xvi, 66)

QMDC is concerned by QWC’s position that baseline assessments when establishing details about water bores for “make good arrangements” are “best carried out close to the time when impairment is expected to begin occurring”. Accepting impairment is inevitable undermines QMDC’s suggested threshold limit approach to defining unacceptable levels of groundwater impacts. Additionally historical records may aid QWC’s analysis by taking into consideration a range of wider factors such as climate change, operations, improvement to technology etc.

On a more technical level, it also appears that the baseline assessment program assumes that there is a zero or unlikely risk of inter aquifer connectivity associated with bore construction, maintenance and rehabilitation.

QMDC staff have discussed this issue both formally and informally with mining and environmental advocates and have had no assurances from a single CSG company representative that the risk of inter aquifer connectivity associated with bore construction, maintenance and rehabilitation is zero. Although much is being done to minimise the risks associated with bore construction this improvement in practice does not totally remove the risks. 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 QMDC’s staff have had with drillers and hydrologists).

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In QMDC's opinion a risk assessment should therefore be undertaken as part of the baseline assessment program to quantify possible impacts on water levels and water quality due to inter aquifer connectivity at bores. Such a risk assessment should consider:

- Existing problems with CSG and other bores
- Ongoing risks during:
 - Exploration
 - Production
 - Rehabilitation
 - Post rehabilitation
- Risks may include:
 - Faulty bore construction
 - Poor bore maintenance
 - Poor bore rehabilitation
 - Tectonic movement or other natural or unnatural phenomena that may compromise geological integrity in the vicinity of bores

The risk assessment should also identify mechanisms to minimise risks to water levels and water quality possibly including:

- Continuous improvement in methods and compliance associated with bore construction
- Continuous improvement in methods and compliance associated with bore maintenance
- Continuous improvement in methods and compliance associated with bore rehabilitation
- Water quality characterisation and checks associated with monitoring to ensure early detection of changes in aquifer waters that may indicate impacts from adjacent aquifers
- ("Emergency") response plans to document how breaches in aquifer integrity should be handled including recommendations to ensure regulatory, technical and financial capacity remain in the region to deal with any breaches even beyond the life of CSG production enterprises.

New 1m impact area: QMDC recommends that QWC outline their reasoning for establishing a new 1m impact area in 3 years time for the proposed next UWIR. (See p.66)

3.8 Spring Impact Management Strategy

QMDC asserts more detail on spring complexes is urgently needed (See p.xvii). QMDC is surprised by the lack of information offered by the UWIR especially in light of the statutory protection required by the *Environmental Protection and Biodiversity Conservation Act 1990* and the *Nature Conservation Act 1992*.

Groundwater dependent ecosystems: QMDC recommends using the term "springs and groundwater dependant ecosystems (GDEs)" rather than just "spring complexes". QMDC acknowledges that the UWIR identifies a number of artesian and water course springs that will potentially be impacted by CSG activities. However the UWIR fails to consider the impacts to other GDEs such as wetlands, riparian vegetation and stygafauna communities that are likely to occur from CSG operations and activities.

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Risk assessment: (See p.75) Given the potential vulnerability of springs and GDEs in the region it is important that the UWIR assesses all impacts even where it is deemed there is a very low risk to springs. QMDC seeks clarification on what predictions will be offered by the UWIR to address low, medium and long term risks?

Mitigation: (See pp.79, 80) Draw down in excess of 0.2m is predicted to impact on 5 of the 71 spring complexes. This is likely to cause significant adverse environmental impacts to the ecological values of these springs from changes in artesian pressure that will decrease the rate of groundwater flow to the springs. Under the *Environmental Protection and Biodiversity Conservation Act 1999* and the *Nature Conservation Act 1992*, it is a regulatory requirement that adverse impacts to individual species and ecological communities associated with springs are avoided.

QMDC is concerned that the QWC appears to ignore this requirement, highlighted by the suggested spring impact mitigation options contained in the UWIR which recommend offsetting impacts once they have occurred rather than ensuring impacts are avoided and do not occur.

QMDC suggests that the UWIR needs to reconsider its proposed mitigation options and take a position recommending that CSG water extraction should be prohibited within a designated proximity to springs source aquifers. This will also align the UWIR and its recommendations to the aspirations of the Great Artesian Basin Resource Operation Plan 2007 (GABROP). In accordance with Chapter 3 of the GABROP, the chief executive must comply with a range of criteria to ensure that base flows to artesian and watercourse springs are protected when considering applications to increase groundwater extraction close to springs.

Although the GABROP criteria are designed to ensure springs are protected from water resource development authorised under the Water Act 2000, QMDC recommends these criteria should also apply to groundwater extraction activities that are authorised under the Petroleum and Gas Act 2004.

3.9 Reporting and Review

Community engagement strategy: QMDC continues to seek public engagement that is timely, meaningful and relevant and conducted appropriately for each stakeholder. A community engagement strategy should be devised by QWC to encourage and facilitate active public consultation, which includes adequate notification and consultation for any proposed changes to reports, reviews or monitoring strategies. QMDC recommends that the notification period should be at least 28 days.

Timeframes to measure extraction: QMDC suggests that a 3 year time period is not a safe time duration to measure extraction on the grounds that the UWIR has shown that there are significant time lags for impacts, 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.

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Revising the UWIR: QMDC believes that the UWIR, needs to be revised yearly in line with QWC's annual reporting in order to ensure potential impacts can be avoided at the earliest opportunity. Additionally a 3 monthly reporting timeframe for CSG companies is deemed more reasonable to inform any revised changes.

3.10 Hydrogeology

The below bullet points highlight areas of improvement relevant to information the UWIR offers on hydrogeology.

- Include a description on interconnectivity when describing groundwater flow (p.21)
- Usefulness of a Figure 4.3 (p.27) when it does not represent complexity of geology. Can this complexity be better represented so it provides a true picture?
- Interconnectivity barely addressed (pp.26, 28, 29, 32,35)
- Risks associated with erosion or absence of aquitards not fully explored (p.32) Where are aquitards absent or eroded? It would be useful to use maps to highlight these areas.
- Faulting & Bandanna Formation not fully examined (p.35)

3.11 Recharge

What risks do slow recharge rates pose? (See p.23)

3.12 Gaps in knowledge & research priorities

Additional to the target research areas outlined in Section 10.5.2 at p.87, QMDC suggests the following research topics:

- Recharge rates/life
- Condamine in regional setting (See p.32)
- Erosion of aquitards (See p.32)
- Improving understanding of watercourse springs contribution to surface waters base flow
- Identifying Groundwater Dependent Ecosystems
- Use of styga-fauna communities as an indicator of groundwater responses to reinjection of CSG water into underground aquifers
- Impacts on water levels and water quality due to inter aquifer connectivity at bores

3.13 Monitoring data

Set monitoring and data collection methodology that is independently reviewed: QMDC resubmits 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. All monitoring data needs to add to the state government's groundwater data base.



Timely public access to monitoring data: 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.

Local water quality guidelines: 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 recommends 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.

Permeability of Walloon Coal Measures: QMDC is interested in why there is no direct assessment data available and yet an indirect assessment by QWC can give a definitive measure ranging from 8×10^{-6} and 1.5×10^{-1} m/d.

Water quality: QMDC recommends that gaps in data should include data identified in Healthy Water Management Plans.

The overall influence of faults in the Surat and Bowen Basins on regional groundwater flows: QWC states that the faults in the Bowen Basin have “little or no affect” on overlaying Surat Basin formations. (See p.37) What is the little affect and on reaching their conclusion (based on conflicting data) that it is unlikely the majority of GAB aquifers will be influenced, how did QWC measure what “little affect” there may be on those majority of aquifers and what impact or risk there may be to the minority of aquifers?

Talinga CSG field (See p.32): At what stage will there be more monitoring data to determine what water level impacts are likely to be? Does QWC’s statement imply that there is no historical monitoring data available after 6 years of operation or does it mean that existing data has yet to be made available for analysis?

Uncertainties: (See p.46) QMDC recommends reporting in the key findings uncertainties in the predictions and what this may mean with regards to applying the precautionary principle.

3.14 Regional model

Primary purpose: (See p.46). QMDC recommend including as a primary purpose of the regional model predictions related to the likelihood of interconnectivity.

Conceptual framework: (See p.48). What implications are there for the model if it is “not possible to correlate the coal seams across” the Walloon Coal Measures? Does that imply certain data will not be gathered?

3.15 Mitigation

Maximum impacts and time lags: (pp.56, 58) QMDC argues that although adaptive management can play a positive role in regional assessments and addressing cumulative impacts and subsequent environmental management, the methodology must be correctly and appropriately applied.

Adaptive management must not be used as a substitute for committing to specific mitigation measures in order to cover a situation where a CSG company is not sure how to mitigate a negative environmental impact, but commits to finding the technology or science in the future, if a problem arises. Additionally, it must not be used to attempt to reduce uncertainty with respect to likely significant adverse environmental effects.

Accordingly, if it is uncertain whether a significant adverse environmental effect from a development will occur, adaptive management cannot be asserted to, if there is a significant impact, so the proponent will adapt to deal with it. As well, it cannot be used to attempt to reduce uncertainty regarding proposed mitigation measures nor be used as to “offset” to the precautionary principle. (See p.46)

Adaptive management and the precautionary principle play distinct roles. “Uncertainty” in the context of the QWC’s functions relates to the understanding that no matter how much scientific evidence and other information to conclude, for example, that a mitigation technique will successfully mitigate adverse effects, there are unknowns owing to the complexities of ecosystems and our inability to completely predict future events. These unknowns could prove that our predictions about mitigation success were incorrect and therefore the best advice should be to adopt the precautionary principle and not proceed with the development.

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.

Make good provisions: QMDC submits that to ensure provisions will be effective, CSG companies should provide detailed information about the measures they propose to take to ‘make good’ impacts to groundwater resources in the Mitigation Options Report they are required to provide.

Unregistered bores: QMDC suggests the inclusion in the UWIR of advice on options available to landholders with unregistered bores that are within the mapped areas of impact.