

CSG Water Management Policy review submission – October 2012

The GasFields Commission provides the following response to the Department of Environment and Heritage Protection (EHP) for consideration in drafting the revised Coal Seam Gas Water (CSG) Management Policy.

This response has been prepared with the input of a variety of stakeholders including the Basin Sustainability Alliance (BSA), Queensland Farmers’ Federation (QFF), AgForce, Cotton Australia, QGC, Origin Energy, Santos, Arrow Energy and the Australian Petroleum Production and Exploration Association (APPEA). All feedback and suggestions have been considered and what is presented in this submission is a consolidated response based on the input received. It should be noted that while there was general agreement on the majority of points included in this document, there were divergent views on some issues. Where this has occurred, the differences have been highlighted and both views have been provided.

It was made clear to all stakeholders involved in the consultation that the purpose of this document was to provide guidance and advice to EHP on the scope and potential considerations for developing a revised draft of the CSG Water Management Policy. It was further explained that EHP would be finalising a draft policy upon receipt of this document and that EHP would make the draft policy available for public consultation and feedback. Stakeholders would therefore have the opportunity to provide comment on the actual draft of the policy direct to EHP and the preparation of this document by the GasFields Commission did not represent their only opportunity for input.

It should also be noted that the term “treated CSG water” in this document is taken to refer to CSG-associated water that has been deemed as appropriate for a beneficial use by either meeting a “fit for purpose” quality standard/guideline (either naturally or after treatment) or has been treated to another suitable standard approved by the regulating authority.

In gathering feedback from community and stakeholders it was identified that there was consensus on some general themes. These key themes, which are discussed in more detail further in the document, are outlined in the following table:

Theme	Comments
Water is a resource, not a waste	All identified a desire for CSG water to be viewed as a valuable resource rather than a “regulated waste”. It was considered by all stakeholders that a change to the current management of treated CSG water as a regulated waste would be beneficial. Similarly, a review of the application of the <i>Water Supply (Safety and Reliability) Act 2008</i> to the management of CSG associated water was also raised as a consistent suggestion.
Consideration of use towards offsetting impacts	Stakeholders identified first and foremost that any potential impacts to groundwater users and subsequent “make good” requirements must be managed appropriately. However, there were differing views between industry and rural stakeholders on the best method of achieving this outcome and its relevance to the development of a CSG Water Management Policy.
Focus on outcomes	Having the ability to choose from a suite of different beneficial use options rather than prescribing a hierarchy of specific uses and methods was considered desirable by many stakeholders. An outcomes-based approach ensures that CSG water is used in a manner that provides benefit wherever possible in differing geographic and geological areas. While it was appreciated that some form of broad hierarchy would likely be appropriate, there was a desire to limit the number of items involved.

Theme	Comments
Streamlined beneficial uses	The provision of “fit for purpose” water quality conditions should be considered as a way to assist in the approval process for a beneficial use. Wherever possible, existing water quality standards such as the Australian and New Zealand Environment Conservation Council (ANZECC) standards or Australian Drinking Water Guidelines (ADWG) should be adopted as a suitable “fit for purpose” guideline or standard.
Dedicated accounting processes	All parties identified that there is a requirement to account for all the water which is produced and how the water is beneficially used – particularly in relation to injection or substitution.
Disposal conditions in exceptional events	In the instance of prolonged wet weather or extreme weather events there may be a requirement for strictly controlled discharges to the environment.

Other issues

Consultation identified some issues that are likely to require future government consideration beyond the finalisation of the new CSG Water Management Policy. Some issues were also identified that were outside the scope of this document but have been included here to highlight existing concerns and potential issues raised by stakeholders that are relevant to CSG water management. In summary these identified issues include:

- Changes to the definition of a waste product so treated CSG water is considered a resource and not a waste. This may require amendment to legislation
- Keeping with the theme of water as resource, the regulatory framework may need to be changed to implement a suitable water accounting and management system to accurately account for movement, injection and substitution of water
- The creation of “fit for purpose” water quality guidelines/standards for using CSG water in a beneficial manner may require work beyond the finalisation of the CSG Water Management Policy. To simplify this process, wherever possible these guidelines should adopt existing water quality standards such as ANZECC or ADWG.
- Consultation with the CSG industry identified concerns that the potential uptake of injection as a beneficial use by CSG companies was likely to be limited by the lack of a regulatory framework that indemnifies companies against any future issues that may arise from the injection of treated CSG water. Essentially, if a CSG company injects treated CSG water into an aquifer in a manner which adheres to all relevant existing government legislation and guidelines, then the company would be seeking to be indemnified by government against future issues that may arise as a result of the injection. It is understood that similar indemnifying legislation exists for the sequestration of carbon and other similar industries and may need to be considered by government in order to promote injection of treated CSG water as a beneficial use
- CSG industry consultation also identified concerns with the retrospective nature of the government’s regulated dam guidelines and the associated difficulties that may arise with ensuring compliance of existing dams. This was identified as an issue that may require further consideration by government but one that is outside the scope of this document
- Similarly, given potential changes to the CSG Water Management Policy, CSG industry representatives identified that the applicability of CSG Water Management Plans and the regulatory framework that guides their content and preparation may require further review to ensure an efficient and effective method of implementing best practice CSG water management.

It was identified by all stakeholders consulted that the development of a timetable for future government consideration of these issues would be beneficial. This would provide increased certainty for industry and the community in relation to the regulatory framework surrounding the management of CSG associated water.

Addressing the discussion paper questions:

Principles for the management of CSG Water (injection and beneficial use)

What principles should guide CSG operators in strategically planning and determining water management solutions?

Consultation has indicated that there are a number of broad principles that the community and industry would like to see in relation to the management of CSG associated water. These include:

- The regulatory framework must account for potential changes in management strategies over time in accordance with varying production rates for CSG associated water
- Any proposed management solutions for CSG associated water must account for the total predicted water production volumes and change in availability of the water over time
- Any planning should consider the desired outcomes of the process, rather than fixating on specific uses and methodologies
- Treated CSG water should be recognised and treated as a resource and not a waste product
- Disposal of CSG water, rather than use in a beneficial manner, should be a last resort and only allowed in exceptional or extenuating circumstances
- The differences between exploration for and production of CSG should be recognised in relation to regulation governing the management of CSG associated water. This is particularly relevant to exploration activities in remote or isolated locations.

Should the government pursue a simpler regulatory framework for the accounting and movement of CSG water?

Generally, there was a consensus amongst industry and rural stakeholders that a simpler regulatory framework for the accounting and movement of CSG water would be desirable. A very strong message that came through in the consultation was that treated CSG water should be viewed as a resource and not a waste product (regulated or otherwise). In recognising this view, it is a natural progression that a regulatory framework that manages the water within this context is also desirable.

The objectives and benefits of a simplified accounting and management framework were considered by the GasFields Commission in conjunction with stakeholders. Some of the key benefits identified include:

- Managing treated CSG associated water as a resource rather than a waste product sends a very clear message to the broader community on the value of the product
- If management strategies such as injection and groundwater substitution are to be successful, there must be a rigid accounting framework for both volumes actually supplied and volumes assessed as substitution for existing groundwater take. For substitution, this must also take into account the variable nature of announced groundwater entitlements
- A suitable regulatory/accounting framework would provide a method for ensuring accurate tracking of actual/substituted water that has been provided to an aquifer system above and beyond any potential impact from CSG water extraction. This is essential in order to determine a company's liability for longer term make good and subsequent preparation of underground water impact reports that take into account CSG company impact mitigation measures that may have occurred
- An accounting framework opens up the possibility of converting water that has been 'banked' into an aquifer, over and above projected impacts, to be converted to a future long term entitlement that could be used for make good or other purposes. It is recognised that this would not be a one-for-one conversion, but is something that could be considered if such a framework existed.

What principles should be used to determine what is considered to be a beneficial use of CSG water?

When considering principles relating to the beneficial use of CSG water, there was a consistent desire that any hierarchy governing the use and management of CSG associated water provided flexibility while ensuring basic priorities and community expectations are adhered to and satisfied.

To this end, it is considered that while a broad hierarchy for management and use of CSG associated water should be developed, the hierarchy must remain outcomes focussed and not be method specific. This is to allow maximum flexibility in managing CSG associated water while ensuring basic priorities are adhered to and technological advances can be incorporated into future management plans. In considering this approach, it was also realised by both rural and industry stakeholders that if there were a long prioritised list of management options, it would

prove difficult for companies and assessing officers to clearly demonstrate that the higher priority options had been addressed prior to considering lower priority options. As such, an example of a suitable hierarchy for the use and management of CSG associated water could be:

1. Use for a purpose that is beneficial to existing water users or existing/new water-dependent activities
2. Disposal to the environment
3. Disposal via evaporation dams

A definition for a “beneficial use” would be required for the purposes of this hierarchy. One suggestion is included above and is fairly broad in nature (so as to include any industry that uses water, including municipal or domestic use) but it was suggested by CSG company representatives that this may require widening to include other activities that are not defined as water dependent industries. Some suggestions from industry include recreation, wildlife maintenance/enhancement and improvement of local environmental values. Considerations surrounding the use of treated CSG water to improve environmental values are discussed in a later section of this document. It was also agreed by all stakeholders that use of CSG water for construction purposes by CSG companies should continue as an allowable use of the water and could also be considered a beneficial use of CSG water.

Guiding principles could also be developed to support the hierarchy for management and use of CSG associated water. Some guiding principles suggested by stakeholders include:

- A preference that CSG water is used for a beneficial purpose close to the region of extraction
- Losses in transmission of water from its source to an end user are minimised
- Treated CSG water should be managed and used efficiently and generally in accordance with existing water management practices when being used for a beneficial purpose
- Where possible, water should be used to supplement existing water users rather than create new users
- A simpler assessment process for short term proposed water uses as opposed to those that may need to be locked in for a longer term or involve large amounts of CSG water. For example, a proposal for beneficial use over a three year period that could be reconsidered upon updated water production figures or release of the next Underground Water Impact Report (UWIR) should take less in the way of justification from a company and assessment from EHP than a 20-year proposal to use all predicted CSG water produced from a gas field
- Proposals that use long term water production assumptions or may rely on long term predicted impacts in an UWIR must demonstrate they have adequately considered appropriate water production and impact scenarios or that the water management proposal can be re-evaluated and/or modified on a periodic basis if required.

Note: The above principles were not agreed upon by all stakeholders and are provided on the basis that they were raised by various parties during consultation.

It was raised by some parties during consultation that it may be desirable to require CSG companies to have considered their impact on other water users and specific environmental values (such as springs) and be able to demonstrate a plan for the management of these impacts prior to being allowed to use CSG water for other purposes. It is important to note that this does not mean that CSG associated water must be used for making good the impacts of CSG extraction on other water users, merely that a company must have demonstrated they have a reasonable plan for meeting their ‘make good’ obligations, using whatever means deemed appropriate, prior to approval for the use of CSG water for other purposes. The intent of this requirement would be to improve confidence in the community that government had assessed a CSG company’s ability to meet its ‘make good’ obligations prior to providing approval for a CSG company to use all of its CSG associated water for other purposes.

Whilst broadly agreeing to the intent of this requirement, there were differences in the preferred approach between rural stakeholders and the CSG industry. Rural stakeholders identified that including the requirement to consider offset of impacts in the management hierarchy would ensure that CSG companies take a strategic approach to planning for future make good and offsetting any potential impacts and hence assure the broader community that this level of planning and consideration had occurred prior to approving the use of CSG water for other purposes.

Industry was of the opinion that ‘make good’ arrangements are a statutory requirement, legislated under the *Water Act 2000*. As a result, there was a legislative requirement that impacts on other water users and environmental values (such as springs) were managed by the companies and, therefore, this did not need to be included in a management hierarchy. There was concern that while the intent of the requirement outlined above was understood, there was the potential for duplication in the assessment process and significant overlap between the requirements for developing a CSG Water Management Plan and other regulatory processes.

As a separate issue, it was considered reasonable by both industry and rural stakeholders that if beneficial use is to be a higher priority than disposal, then the ability for a company to discharge suitably treated CSG associated water to the environment during extreme or prolonged weather events must be considered.

For example and to better explain the issue, a company may commit to beneficially using CSG associated water by providing it to existing groundwater users as a substitute for their current groundwater entitlement. It could be demonstrated by the company that it has identified sufficient water users to ensure adequate uptake of the available water in most situations (potentially up to a set figure such as a 1 in x annual rainfall). However, it would be unreasonable to expect a company to have alternative methods of using the water available at short notice should weather conditions and rainfall significantly exceed the design of the water use system. In these instances, it would seem reasonable to allow the discharge of suitably treated water into passing watercourse flows in accordance with a strict set of conditions relating to quality, receiving flow rates, discharge rates and suitable start and stop trigger points. Such conditions, if considered reasonable, could also require a company to ensure it has suitable spare storage on site at the beginning of a wet season to account for short term lack of uptake by water users.

It must be stressed that while an approach as outlined above was agreed as being reasonable, water use and management systems should be designed so it is only in exceptional circumstances that such discharges would be authorised.

Further to this point, the CSG industry identified that it would like to extend the potential for extenuating discharge conditions to include factors other than rainfall and extreme weather conditions. An example of this may be where an approved beneficial use for a plantation cannot currently be fully utilised as the area has been destroyed by a fire or pest. Consideration of circumstances such as these will be required and it may be beneficial to have provision for CSG companies to request permission to discharge in accordance with approved extenuating circumstances conditions. This may avoid the need to apply for a transitional environmental program in such instances while ensuring government scrutiny of the situation that has required the discharge.

Lastly, the differences between exploration and production activities by CSG companies was raised as a potential issue. It was discussed that these differences should be recognised in relation to the management of CSG associated water, particularly in relation to exploration or production testing activities in remote or isolated locations.

 ***How should impacts on environmental values be considered where an operator is seeking to beneficially release CSG water to the environment?***

Environmental values should be considered in the assessment of all options for the management and use of CSG associated water. This being said, it was generally agreed during consultation that the consideration of potential environmental impacts resulting from a beneficial use of treated CSG associated water required simplification.

To this end, it was raised during consultation that it would be beneficial to both rural and industry stakeholders alike to consider the adoption of 'fit for purpose' water quality guidelines. The concept that was discussed related to developing suitable guidelines for water quality for a variety of potential uses of CSG associated water. Once water was treated to these guidelines, then no further assessment of potential environmental impact was required in relation to water quality for that particular use. It was felt that this could simplify the assessment process for the beneficial use of treated CSG associated water in many instances and would enable a clearer understanding within the community and the CSG industry as to what was required in order to beneficially use CSG associated water. It was raised by stakeholders that, wherever possible, existing water quality standards such as ANZECC or ADWG should be adopted as a suitable "fit for purpose" guideline or standard.

It is important to realise that some form of assessment would still be required to determine if the proposed use of the water was consistent with the pre-prepared guidelines and was appropriate given the hierarchy of CSG associated water management options. Similarly, further assessment of potential impacts to the environment from a beneficial use may be required for issues that are not solely related to water quality.

If, due to exceptional circumstances, a CSG company was seeking approval to dispose of CSG associated water to the environment, then a rigorous assessment of the potential impact on environmental values would still be required. This would also apply to any authorised "extreme or prolonged weather event" discharge as discussed in the previous section.

The potential for the release of treated CSG water in order to benefit the environment was identified as an issue where industry and rural stakeholders diverged in their opinions. CSG companies proposed that releasing water to the environment where environmental benefit could be demonstrated should be considered a beneficial use. Rural stakeholders indicated that discharge to the environment (whether considered beneficial or otherwise) should be investigated as a final resort after all other beneficial use options for industry, both existing and new, have been

exhausted (i.e., the water should first be used as a resource rather than for environmental benefit). There was also concern raised that should releases to the benefit of the environment be considered, careful assessment of how that benefit was determined would be required (e.g. would discharging treated CSG water to a watercourse to assist in mimicking pre-development flows really be of environmental benefit given the short term nature of the availability of CSG water?).

 ***What factors might influence the decision to use CSG water for making good impacts on private bores?***

As mentioned earlier in this document, there was divergence of opinion between rural and industry stakeholders in relation to the use of CSG water for making good impacts on other water users. Essentially, all stakeholders did agree that the requirement to make good is non-negotiable and is not waived by approval for a company to use CSG water for another beneficial purpose. However, the way in which this assurance is provided to the community and the way in which it is managed within the regulatory framework was a matter of debate. Further information on this topic can be found in the earlier section of this document titled “What principles should be used to determine what is considered to be a beneficial use of CSG water?”

 ***What principles could be used to guide decisions about aquifer injection and the locations in which this occurs?***

In accordance with earlier statements in this document, it is felt that prioritisation of the use of CSG associated water should be focussed on outcomes rather than specific uses, such as injection.

This being said, it was generally agreed that injection or groundwater substitution to offset potential impacts on water users as a result of CSG extraction was something that would be considered a beneficial use of treated CSG water under the proposed hierarchy. Similarly, it was agreed by consulted stakeholders that injection of suitable quality water into an existing aquifer that is either not impacted by CSG extraction or injection at levels over and above predicted impacts would also be considered beneficial use of treated CSG water in the proposed hierarchy.

Careful consideration would obviously need to be given to the assessment of any proposed injection to ensure unintended impacts to the resource or the environment did not occur.

As a side issue, it was raised by both rural and industry stakeholders, that consideration to the continued applicability of the *Water Supply (Safety and Reliability) Act 2008* to CSG associated water may be required. There was a consistent feeling amongst stakeholders that the Act actually made using CSG associated water for beneficial purposes (such as but not limited to injection) more difficult and it was questioned whether it added any value to the assessment and consideration of the management and use of CSG associated water given the other regulatory protections that are in place.

Additionally, CSG industry representatives raised concerns that the adoption of injection of treated CSG water into aquifers may be impeded by the lack of a regulatory framework which provides future indemnity for operators who carried out injection of treated CSG water in accordance with government legislation and guidelines relevant at the time. As outlined in the ‘other issues’ section, the lack of such a framework was viewed as a significant constraint to the uptake of injection of treated CSG water as a beneficial use. The Gorgon Project (Barrow Island) was raised as an example of the implementation of a similar regulatory framework. In 2009 the Commonwealth Government and the Western Australia State Government committed to indemnify the proponent from common law liability on closure of the injection project through the creation of specific carbon sequestration legislation.

 ***Could aquifer injection be used for minimising impacts identified in Underground Water Impact Report?***

Aquifer injection could be one solution in a portfolio available to the companies to minimise the impacts identified in an Underground Water Impact Report (UWIR). Minimising potential regional impacts to an aquifer, over and above those on individual water users identified in a UWIR, would be considered beneficial use for the water under the draft hierarchy suggested in this document.

While it was considered that injection to offset impacts to an aquifer would be a beneficial use of treated CSG water, it was identified that it would be difficult and infeasible to make it compulsory that region-wide impacts on an aquifer as a whole must be mitigated by CSG companies (possibly through re-injection or substitution) unless there were significant unintended impacts as described above. The difficulties identified principally related to the broad geographical spread of potential impacts as well as the technical and economical constraints associated with injection in some aquifers and geological/geographical areas. It was raised that there was a statutory requirement to ‘make good’ impacts on water users and that the intent of this was to ensure continuity of supply to other water users. It was also discussed during consultation that requiring an industry to offset potential impacts to an aquifer or water resource as a whole was without precedent and, should it be considered, the applicability of this to other

industries would need to be considered.

This being said, if it were identified at a later date that there were serious and considerable unintended consequences on regional aquifer systems as a result of CSG extraction, injection is one potential solution in a suite of options that could be used to assist in mitigating these unintended impacts.

Should substitution be left as a voluntary arrangement between entitlement holders and CSG operators?

In consultation with stakeholders, it is considered that substitution should be left as a voluntary arrangement between entitlement holders and CSG companies as a beneficial use of treated CSG water. However, it was felt that a suitable accounting system should be mandated if a company wished to proceed with this option. This is discussed in more detail in an earlier section of this document.

It was also noted that a CSG company may choose to enter into voluntary substitution arrangements as a method of assisting them in meeting any required 'make good' obligations.

What principles should guide the management and disposal of salt?

As with the management and use of CSG associated water, it was agreed by stakeholders that an outcome specific hierarchy for the management and use of salt should be considered.

Broadly speaking, it was agreed that using or treating the brine/salt so it creates useable and saleable products was considered to be the first priority management option. Disposal in an environmentally safe manner was considered to be a second priority option.

It was raised during consultation that while this proposed outcomes-based hierarchy appeared logical, some stakeholders felt that the broader community was likely to prefer the injection of brine or salt into isolated geological structures deep underground rather than disposal to surface based regulated waste disposal facilities. Other feedback received indicated that some members of the community believed that the ability to more easily monitor the performance of surface based regulated waste disposal facilities and the potential uncertainty surrounding identification and monitoring of underground geological structures meant that environmental values could be more easily protected through proper management of surface based regulated waste facilities. While acknowledging these points of view, it was generally agreed by stakeholders consulted as part of this process that the outcome was more important than the actual method and hence the broad hierarchy for salt management outlined in this document.

As with the water hierarchy, guiding principles may be required for each of these priority options.

Some suggested guiding principles for the management of salt include:

- A requirement to consider the economic and technical feasibility of beneficially using salt and brine in remote or isolated locations. This is particularly relevant for exploration activities
- A desire for any disposal options or facilities to be located away from certain land types where possible
- The need for a risk assessment to determine potential risks and considerations to the surrounding environment and other natural resources (such as water supplies)
- A desire to minimise the volume of salt and brine produced as a waste product and hence the required size of any subsequent disposal facilities
- A preference to reduce brine or liquid waste to a dry product before disposal in a land/surface based regulated waste facility
- Consideration of the most appropriate disposal method for a geographic and geological location if beneficial uses are not suitable or feasible
- A desire that, should disposal be required, existing licensed regulated waste disposal facilities are used in preference to purpose built regulated waste disposal facilities on freehold land owned by the CSG operator.

It should also be noted that stakeholders agreed that all brine and salt produced as a result of the treatment of CSG associated water should be considered a regulated waste unless approved for a beneficial use.