

# PREMIER'S BRIEFING NOTE

Policy

Tracking Folder No. TF/12/8600

Document No. DOC/12/94171

To: THE PREMIER  
Date: 17 May 2012  
Subject: Meeting with Carbon Energy – Underground Coal Gasification technology.

Approved / Not Approved / Noted

Premier *[Signature]*

Date 31.12.2012

Date Action Required by: ...../...../.....

Requested by: .....  
(if appropriate)

## • RECOMMENDATION

It is recommended that you:

- note this briefing regarding background and developments to-date about Carbon Energy's projects and Underground Coal Gasification (UCG) pursuits
- sign the letter (Attachment 1) to Mr Andrew Dash, Managing Director, Carbon Energy, in response to his letter of 29 March 2012 (Attachment 2), requesting that a meeting be arranged with your policy team

## • KEY ISSUES

Carbon Energy's (CE) projects

- CE wishes to develop an energy and industrial park at its Blue Gum property near Kogan consisting of a low emission power station, Syngas plant and chemical production facility for commercialisation.
- An environmental incident at the CE pilot project (significant quantities of UCG process water released to Bloodwood Creek), resulted in the former Department of Environment and Resource Management (DERM) issuing CE an environmental protection order in July 2010 to commence a controlled shutdown of its pilot.
- An environmental evaluation (EE) was also issued requiring CE to investigate cause and extent of environmental damage and introduce preventative measures.
- Following the completion of the EE, the pilot project was allowed to re-commence under amended environmental conditions issued in February 2011.
- CE is being prosecuted by the Department of Environment and Heritage Protection (DEHP) for the release of process water without approval and for failing to report the incident, with the next hearing date expected in June 2012.
- On 29 March 2012, CE announced that costs at the project site will be reduced until a commercial agreement with a partner is reached and regulatory certainty is achieved. CE has suspended the one and a half megawatt trial and shut-in Panel 2, which will be maintained in a state to be recommissioned.

Preparation of the Independent Scientific Panel Report

- An Independent Scientific Panel (the panel) was appointed by the previous Government in 2009 to assist in the assessment of the technical viability and environmental sustainability of UCG technology beyond the trial periods.
- The pilot projects must complete and submit detailed project reports to the panel and the Department of Natural Resources and Mines (DNRM) outlining the activities, impacts and findings associated with their projects.
- Environmental incidents at the two UCG pilot project sites (Cougar and Carbon Energy) required the two pilot projects to stop work for a period of time.

Action Officer: Robble Meddick  
Area: ERP  
Telephone: 07 38360997

Approvals by Director / ED / DDG  
documented in notes in TRIM

- The panel, UCG proponents and officers from DNRM met on 27 March 2012 and 11 April 2012 to discuss progress of the reports. The UCG proponents advised that information relating to decommissioning and rehabilitation will not be available within the current revised reporting time due to safety concerns (CE has advised that gas is contained within the cavity at 1050 kPA, which is an impediment to entry by drilling to collect necessary data).
- The panel advised DNRM that without information regarding rehabilitation and decommissioning, it will not be able to provide a complete set of recommendations for Government's consideration.
- On 2 May 2012, the panel received the first set of draft pilot project reports from Linc and CE (minus the rehabilitation and decommissioning components).
- The panel met with the Deputy Director-General, Mining and Petroleum, DNRM on 3 May 2012 and reiterated to Government that it will not be able provide a full set of recommendations due to the proponents inability to submit information regarding rehabilitation and decommissioning.

**Environmental Authorities.**

- CE submitted applications to amend its environmental authorities to the former Government for both the Petroleum Facilities Licence and Mineral Development Licence (MDL374) in June 2011. Both applications were withdrawn by CE in April 2012.

**• BACKGROUND**

- The former Government's policy provided for a UCG pilot phase to gather technical, environmental and commercial information to assess future viability of a UCG industry. Three pilot projects were set up (i) Carbon Energy at Bloodwood Creek near Dalby, (ii) Cougar Energy near Kingaroy, and (iii) Linc Energy near Chinchilla.

**Comments (Premier or DG)**



**Jon Grayson**  
**Director-General**





# Premier of Queensland

For reply please quote: *ERP/MC - TF/12/8600 - DOC/12/75821*

- 1 JUN 2012

Mr Andrew Dash  
Managing Director  
Carbon Energy  
PO Box 2118  
TOOWONG DC QLD 4066

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Email [ThePremier@premiers.qld.gov.au](mailto:ThePremier@premiers.qld.gov.au)  
Website [www.thepremier.qld.gov.au](http://www.thepremier.qld.gov.au)

Dear Mr Dash

*Andrew,*

Thank you for your letter of 29 March 2012 expressing your congratulations on my election as Premier of Queensland and providing me with information about Carbon Energy.

Your offer to brief me on Carbon Energy's Underground Coal Gasification (UCG) technology further is appreciated. My policy team is keen to meet with you to discuss this important issue.

Please contact Ms Lisa Palu, Ministerial Advisor, on telephone (07) 3224 4500 to arrange a mutually convenient time.

I have also forwarded your letter to the Honourable Andrew Cripps MP for his consideration, as this matter falls within the portfolio responsibility of the Minister for Natural Resources and Mines.

Yours sincerely

  
CAMPBELL NEWMAN



Queensland  
Government

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**carbonenergy**

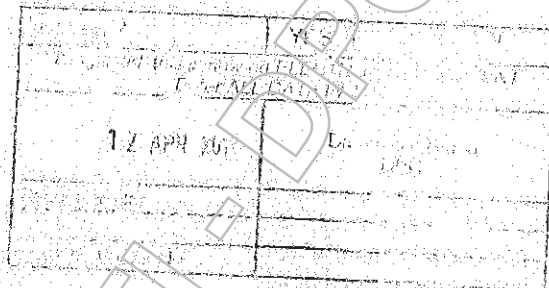
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Carbon Energy Limited | ABN 56 057 552 137



L12/301 Coronation Drive  
Milton Qld, 4064  
29 March 2012

The Honourable Campbell Newman  
Premier of Queensland  
PO Box 15185  
City East Qld 4002



Dear Premier,

**QUEENSLAND ENERGY INNOVATOR ANNOUNCES NEW STRATEGIC DIRECTION**

Firstly congratulations on your election victory and becoming Premier of Queensland. I look forward to achieving great things for our State under your leadership.

As you may be aware, our locally developed innovations and achievements in Underground Coal Gasification (UCG) technology are attracting global attention.

As an advanced coal technology company, Carbon Energy is committed to the further development of its cutting edge UCG process which delivers 20 times the energy from the same resource when compared with Coal Seam Gas (GSG), with a smaller environmental footprint and no fracking.

The Company recently achieved proof of concept with over 12 months continuous production of high-quality syngas at our Bloodwood Creek site and the generation of electricity into the local grid at Dalby.

Our path to making these achievements in Queensland have been a regulatory challenge under the previous Government which we have stated publicly. As a result, today, Carbon Energy is announcing a new strategic direction. This decision has been made to assist the Company reduce its costs, until we can achieve more regulatory certainty and focus effort on further developing our world leading technology where the benefits of lower cost energy production are more vigorously pursued.

As part of our effort to reduce costs our Bloodwood Creek operations will be shut-in but maintained in a state which can be recommissioned in the future. All above ground facilities will be kept in place

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and will continue to be maintained to the highest level, with all environmental and regulatory standards met or exceeded.

Carbon Energy is revising staffing requirements at the Bloodwood Creek site. Regrettably, it is anticipated some job losses will occur in the short term whilst we optimise assets and financing to best fund our plans for future growth.

Considerable effort will be focused on optimising rehabilitation methodology to demonstrate the full life cycle of a UCG panel, enabling the company to reduce costs whilst advancing technical outcomes and increasing intellectual property. This will also help prove best practise in environmental compliance and enable increased energy production from our facility when our site is recommissioned.

Carbon Energy UCG operations stand to benefit Queenslanders gain access to cheaper energy sources with lower carbon emissions than traditional coal fired power stations and without the need to for fracking as with CSG.

We continue to work with major corporate partners to develop a commercial scale project to be contracted at our site, near Dalby in South West Queensland.

In addition we are currently working with companies in North America and Chile that see the benefits that UCG can provide. In line with the LNP "Can Do" Resources and Energy Strategy released last November I believe our proven technology can assist your Government keep electricity prices lower as well as fostering a world leading technology in Queensland.

Once you have had a chance to settle into your new role I would be delighted to brief you further on our world leading technology and the best opportunity for Carbon Energy to recommence our plans to develop commercial scale electricity production here in Queensland.

Please don't hesitate to contact me should you require any further details.

Yours sincerely,



Andrew Dash

Managing Director

(Attachment – ASX Release 29 March 2012)

Release

[www.carbonenergy.com.au](http://www.carbonenergy.com.au)



**carbonenergy**

resource. technology. markets.

Carbon Energy Limited | ABN 56 057 552 137

## ASX/Media Announcement

29 March 2012

### Carbon Energy's keyseam® Technology Proven

Carbon Energy (ASX:CNX, OTCQX:GNXAY) is pleased to announce it has successfully met its targets to confirm its 'Proof of Concept', of its proprietary keyseam® UCG Technology through operational lifecycle, from panel construction and gasification through to the export of electricity. The Company is now well placed to realise value through commercialising the technology after having invested approximately \$100 million and 5 years developing the technology, in addition to 10 years of research by the CSIRO.

In achieving Proof of Concept the Company has demonstrated the following key elements:

- Drilling and construction of Carbon Energy's unique panel design
- Ignition and commissioning of two UCG panels
- Over 3 years of in-field UCG demonstration and operation
- 12 months continuous syngas production from UCG Panel 2
- Consistent production of high quality syngas
- Reliable operation of internal-combustion-engine driven electricity generators
- Reliable export of electricity to the local electricity grid
- Validation of gasification prediction models with operational data
- Validated that panels adjacent to each other can operate independently
- Management of ground water during operations
- Panel shutdown and progressive rehabilitation is underway

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Carbon Energy Limited  
ABN 56 057 552 137  
Carbon Energy (Operations) Pty Ltd  
ABN 61 105 176 967



## Strategic direction confirmed

Carbon Energy (ASX:CNX, OTCQX:CNXAY) has proven its world leading UCG technology with over 12 months continuous production of consistent high quality syngas, the reliable generation of electricity and commercialisation by export into the local grid, from its Bloodwood Creek project site near Dalby in south west Queensland.

Achievement of the proof of concept has led the company to undertake a strategic review to maximise the Company's technological achievements. The review has defined plans for global expansion as well as assessing the optimisation of assets and financing options needed to best fund the Company's plans for growth.

The outcomes of the review have confirmed Carbon Energy's strategic direction, which is to position the Company as the world leading UCG technology partner. The Company will actively pursue commercial scale projects with coal owners and energy end users (including electricity, chemicals and liquids) both in Australia and off shore in addition to our current projects in Chile, North America and Europe.

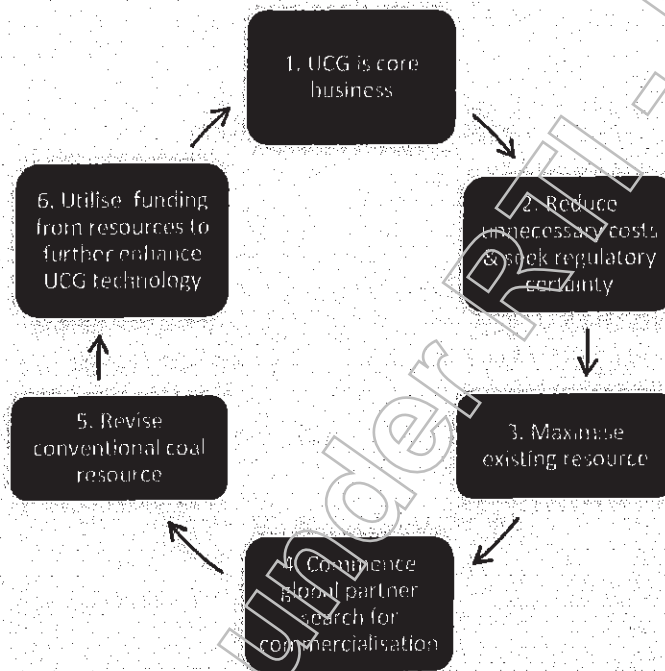
In addition, the Company plans to build a strong financial base for the future development of its UCG technology business by maximising the value of its two significant resources in Queensland:

- **Syngas:** 743 PJ of 2P Reserves of syngas at Bloodwood Creek (see Appendix A). The Company will work with the new Queensland Government to obtain the required approvals to develop a commercial scale project on the Bloodwood Creek site. Until such time as commercial agreement is reached with a partner and regulatory certainty is achieved, costs at the project site will be reduced.
- **Coal:** 1,400km<sup>2</sup> of thermal coal leases surrounding Bloodwood Creek. Carbon Energy will convert its substantial coal tenements into a conventional coal resource through a program of exploration drilling, and a scoping and feasibility study over the next 12 months. The Company will then evaluate options to gain maximum value from the resource over the following 12-18 months to fund its share of development of the Company's world leading UCG technology. The Company has previously reported 668 Mt JORC\* Indicated and Inferred Resources (218Mt Indicated and 450Mt Inferred at a 10% discount off) within just 52 km<sup>2</sup>; this includes the MDL area. Carbon Energy has



engaged a third party resource consultant to independently assess the additional coal resources contained in its leases.

In summary Carbon Energy's core UCG Business developed and supported through the following key elements.



Managing Director, Andrew Dash said the defining of the new strategic direction was extremely positive for the business. "We have proven our keyseam technology works and are more committed than ever to commercially applying our UCG technology. We are best placed to do this by partnering with coal resource owners and energy users," Mr Dash said.



"In addition to a significant gas reserve we also have extensive thermal coal resources available on our existing properties, which have the potential to add substantial value to the business and provide the basis to create a funding model for the ongoing development of our world leading keyseam technology," he said.

Progress updates on the development of the Surat Basin Coal resources and the search for global partners will be provided in the coming months.

## Bloodwood Creek Actions

Carbon Energy today announced, as an outcome of its strategic review, that costs at the project site will be reduced until a commercial agreement with a partner is reached and regulatory certainty is achieved. The Company will work with the newly formed Queensland Government to obtain approvals required to develop Bloodwood Creek to a commercial scale project. Carbon Energy is currently seeking partners to help realise value from its existing gas assets at its South West Queensland project site.

It is intended that the cost reduction activities at Bloodwood Creek will include:

- Suspension of the 1.5MW power station trial
- Panel 2 will be shut-in, and maintained in a state from which it can be re-commissioned
- Staffing requirements will be revised to meet the above activities

In addition:

- Rehabilitation of Panel 1 will continue, in order to demonstrate the completion of the full life cycle of a UCG panel
- Environmental monitoring will continue
- Above ground facilities will remain in place and continue to be maintained. All environmental and regulatory conditions will continue to be met or exceeded.

This decision enables the Company to reduce costs while still achieving technical outcomes and increasing its UCG intellectual property.



# Conventional coal to fund future UCG development

Carbon Energy (ASX:CNX, OTCQX:CNXAY) today announced, as part of its strategic review, that it has been actively studying the substantial coal potential of its leases beyond the uses for UCG. The Company currently holds 1,400km<sup>2</sup> of coal tenements potentially suitable for open cut or underground mining in southern Queensland's Surat Basin. Of this 1,400 km<sup>2</sup>, only 29km<sup>2</sup> is contained within the Company's MDL374.

The Company has previously reported 668MT JORC\* Indicated and Inferred Resources (Refer to Appendix B – 218MT Indicated and 450MT Inferred at a 2m cut-off) within just 52 km<sup>2</sup> which includes the MDL area. Carbon Energy has engaged a third party resource consultant to independently assess the additional coal resources contained in these leases.

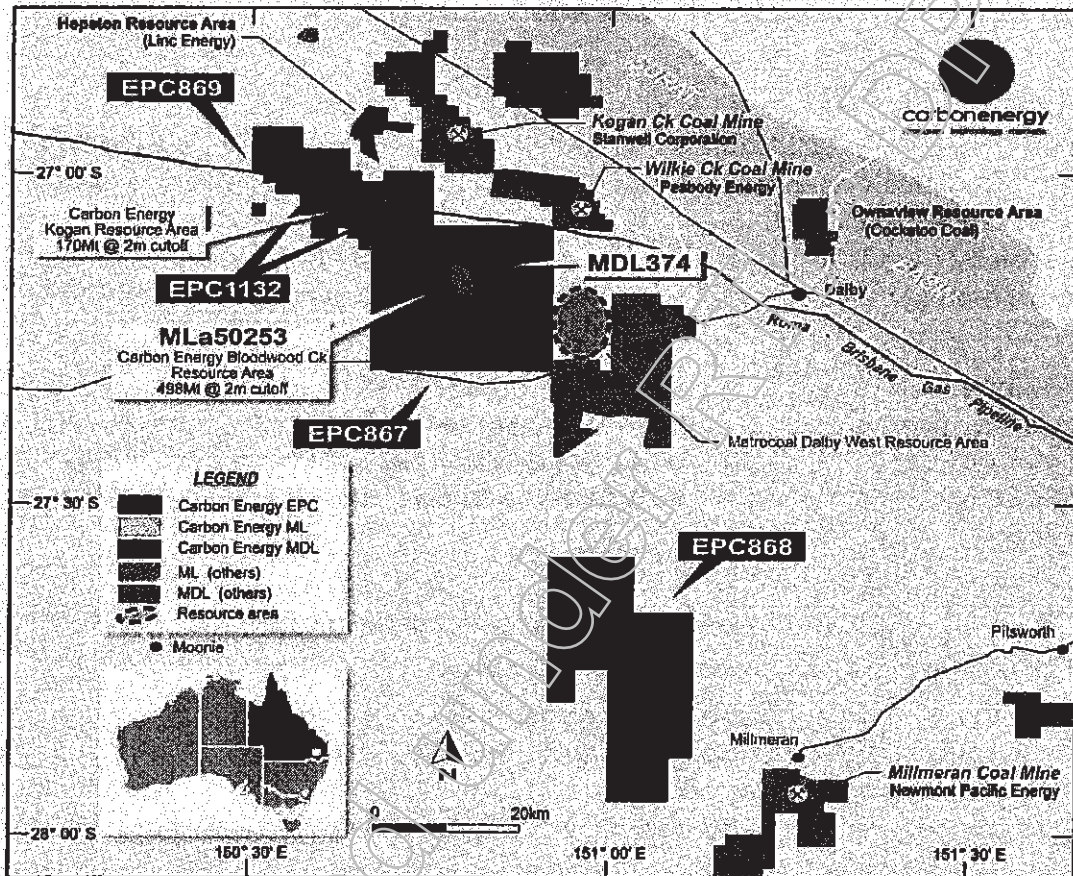
Results of this work are expected by the end of the financial year.

Details of the potential area to review are as follows:

- 1,400 km<sup>2</sup> of EPC's in Queensland's Surat basin
- Close to existing operating mines and proposed mines
- Close to rail infrastructure
- Existing export and domestic coal products from the Surat Basin



The following map indicates the proximity of Carbon Energy's Coal tenure in the Surat Basin in relation to surrounding projects, rail and other infrastructure.



**Carbon Energy Coal Tenure Surat Basin**

**ENDS**

For and on behalf of the Board

*Andrew Dash*

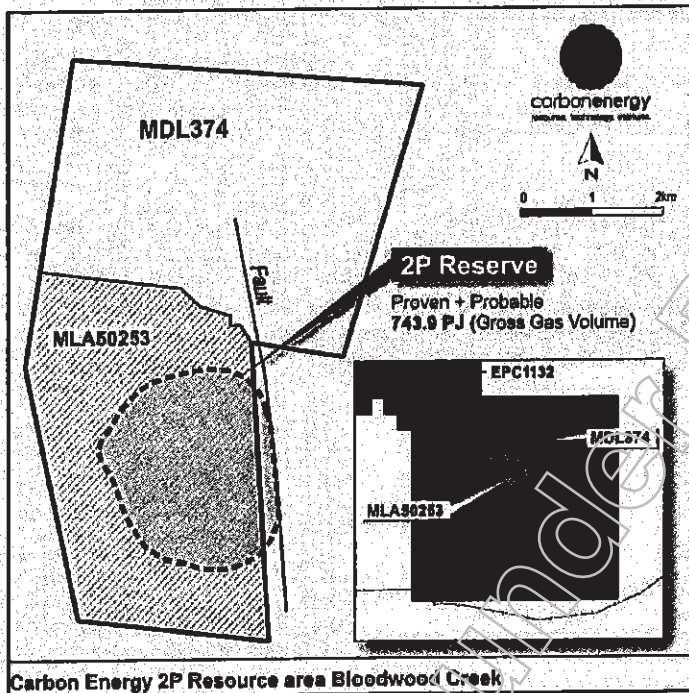
Andrew Dash  
Managing Director

For more information please contact Andrew Crook on +61 419 788 431 or  
to our website at [www.carbonenergy.com.au](http://www.carbonenergy.com.au)

[www.carbonenergy.com.au](http://www.carbonenergy.com.au)

## Appendix A

Carbon Energy has a certified 2P resource of 743 PJ of syngas within its existing UCG licensed area (MDL 374). In energy terms, this is equivalent to Brisbane's entire gas supply for over 15 years.



Carbon Energy 2P Resource area Bloodwood Creek

Details of the Coal resource:

- MDL374 is 29 km<sup>2</sup> tenure;
- Current tenure allows for demonstration of multiple UCG panels and the production of up to 30MW of electricity; and
- Application for a Mining Lease (which allows full commercial production) has been submitted over approximately half of the MDL area.

In accordance with the Society of Petroleum Engineers (SPE) guidelines, the reserves in these properties are:

Area	Category	Gross Gas Volume (PJ)
Bloodwood Creek EPC 867 (including MDL 374)	1P Reserve (Proven)	11.0
	2P Reserves (Proven + Probable)	743.9
	3P Reserves (Proven + Probable + Possible)	1,042.8

Reserves estimates used in this document were compiled by Mr Timothy Hower of MHA Petroleum Consultants, a qualified person under ASX Listing Rule 5.11. Mr Hower has consented to the use of the reserve estimates within this document in the form and context which it appears.



## Appendix B

### Coal Resource Summary \*

Bloodwood Creek, Australia	2	218	280	498
Kogan, Australia	2	-	170	170
Total Resource	2	218	450	668

#### Notes: \* Competent Person Statement – Coal

The information in this report that relates to resources is based on information compiled by Dr C.W. Mallett, Technical Director Carbon Energy Limited who is a member of the Australian Institute of Mining and Metallurgy. Dr Mallett has sufficient experience which is relevant to the style of mineralization and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2004 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Dr Mallett consents to the inclusion in the release of the matters based on his information in the form and context in which it appears.

### **About Carbon Energy**

Carbon Energy is a world leader of advanced coal technology. Our business is transforming stranded coal resources into high-value fuels with lower carbon emissions to meet the increasing global demand for new, low cost, alternative energy sources.

Carbon Energy is headquartered in Brisbane, Australia and listed on the Australian Securities Exchange (ASX). The Company also has an office in New York and is quoted on the OTCQX International.

The Company's proprietary technology, keyseam® is an innovation in underground coal gasification (UCG), incorporating a unique site selection methodology and advanced geological and hydrological modelling. Keyseam maximises resource efficiency, extracting up to 20 times more energy from the same resource than coal seam gas, whilst minimising surface disturbance and preserving groundwater quality.

Carbon Energy's technological advantage comes from its association with Australia's premier research agency, CSIRO, which includes world-class geotechnical, hydrological and gasification modelling capabilities.

Carbon Energy is building an international portfolio of coal assets suitable for keyseam® and accessible to high-value markets. The Company has resources and rights to coal assets in projects across Australia, Chile and the United States.

[www.carbonenergy.com.au](http://www.carbonenergy.com.au)

Release





# Premier of Queensland

For reply please quote: EP/AP – TF/13/4203 – DOC/13/50975

10 APR 2013

Mr David Smith  
Chief Operations Officer  
Linc Energy  
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BRISBANE QLD 4000

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Queensland 4002 Australia  
Telephone +61 7 3224 4500  
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Email [ThePremier@premiers.qld.gov.au](mailto:ThePremier@premiers.qld.gov.au)  
Website [www.thepremier.qld.gov.au](http://www.thepremier.qld.gov.au)

Dear Mr Smith

*David,*

Thank you for your email of 28 February 2013 inviting me to be present for the signing of an agreement between Linc Energy and Exxaro.

Due to my current heavy work schedule, I won't be able to attend the signing of this significant agreement but I want to wish you all the best in your business dealings with Exxaro and, indeed, all your future operations.

Thanks again for your kind invitation and for taking the time to write to me about this exciting development.

Yours sincerely

  
CAMPBELL NEWMAN

## Chris McKenna

---

**From:** The Premier (Ministerial)  
**Sent:** Thursday, 28 February 2013 4:20 PM  
**To:** The Premier  
**Subject:** FW: Exxaro Signing Ceremony  
**Attachments:** Siphon Nkosi - CEO Exxaro.pdf

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**From:** David Smith [mailto:david.smith@lincenergy.com]  
**Sent:** Thursday, 28 February 2013 3:18 PM  
**To:** Premier  
**Subject:** Exxaro Signing Ceremony

Dear Premier Campbell Newman

Linc Energy is about to sign a significant deal with Exxaro, the second largest coal producer in Africa and has been rated by Boston Consulting Group as one of the top ten mining companies in the world based on shareholders return over the past decade. We plan to sign Formal Agreements on Friday 26 April which will formalise the Linc / Exxaro partnership to develop UCG energy projects in Sub-Saharan Africa (UCG to Power & UCG to GTL).

The three key people that we expect for the above from Exxaro are:

- Siphon Nkosi (CEO) (see attached front cover of Forbes magazine)
- Ernst Venter (Executive GM)
- Danie Mouton (GM Growth)

It would be a greatly appreciated if the Premier and maybe one other minister could be present during this signing, preferably in the morning but flexible on the day according to your diary. We would be delighted if you could share a meal with us (breakfast, lunch or dinner) but if time does not permit then we could minimise your time required to 20 mins or stay as long as you would like.

We see this as an opportunity to showcase Queensland to one of the most influential people in Africa in the resources sector, attract in bound investment, promote trade and innovation and stimulate engineering employment here in Queensland.

Present from Linc Energy will be

- Peter Bond (CEO & Managing Director)
- Kobus Terblanche (GM Africa)
- Adam Bond (President of Clean Energy)

The signing will be in a Brisbane CBD location still to be determined.

Could you please indicate your availability at your earliest convenience.

Regards  
David

David Smith  
Chief Operations Officer



P +61 7 3229 0800 | M +61 448 138 269 | E [david.smith@lincenergy.com](mailto:david.smith@lincenergy.com)



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**PREMIER'S MEETING BRIEF**

*OK*

Tracking Folder No. TF/13/8105  
Document No. DOC/13/67466

<b>To:</b>	<b>THE PREMIER</b>
<b>Date of briefing:</b>	26 April 2013
<b>For meeting with:</b>	<i>Linc Energy – Mr Peter Bond (CEO); and Mr David Smith (Chief Operating Officer)</i>
<b>For meeting on:</b>	<i>Tuesday 30 April 2013</i>

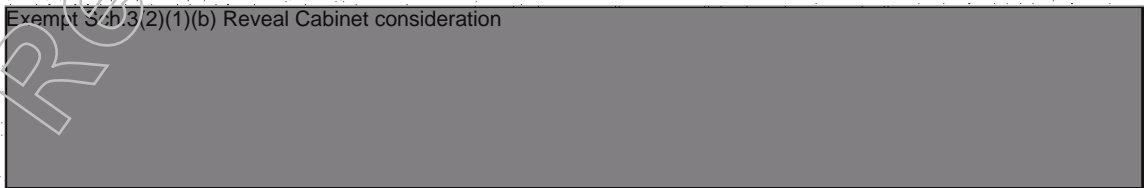
**• RECOMMENDATION**

It is recommended that you note the following information for your meeting with Mr Peter Bond (CEO) and Mr David Smith (Chief Operating Officer), Linc Energy, on 30 April 2013.

**• KEY ISSUES**

- Linc Energy are likely to discuss the Underground Coal Gasification (UCG) trial projects, their views on the Independent Scientific Panel's (ISP) report assessing UCG technical viability and environmental sustainability, and the Government's proposed approach to implement the overarching ISP recommendations.
- The ISP concluded that the UCG pilot trial had not gathered sufficient scientific and technical information to demonstrate that the 'self-cleaning cavity' approach to decommissioning is environmentally safe and sustainable and that little or no information has been provided on site rehabilitation specific to Queensland UCG.
- The ISP's three overarching recommendations indicate that the trials should continue for six months, albeit under strict conditions, to demonstrate that decommissioning is environmentally safe and sustainable. The pilot trials have been unable to demonstrate this to-date and the ISP recommends that, until decommissioning is successfully demonstrated, no commercial facility commence.
- The ISP also provided eight additional recommendations, largely relating to the potential future operation of a UCG industry in Queensland. On 14 February 2013, you confirmed your support for the proposed approach to implement the overarching recommendations of the panel.
- Linc (and other trial proponents, Carbon Energy and Cougar Energy) have been advised that any information they identify to be proprietary or factually incorrect will be considered prior to any decision to publicly release the ISP report.
- A peer review of the ISP report is being implemented under the auspices of the Queensland Chief Scientist, Dr Geoff Garrett. At this stage the Department of Natural Resources and Mines (DNRM) propose to consider any submissions from Linc, Carbon, or Cougar, where provided.

Exempt 3.3(2)(1)(b) Reveal Cabinet consideration



**Carbon Energy peer review of UCG scientific report**

- On 10 April 2013, Carbon Energy provided a copy of the Carbon Energy commissioned peer review of the ISP report, carried out by former Australian Chief Scientist, Professor Robin Batterham AO. This paper notes that the ISP report contains *much that is sound and should be welcomed by Carbon Energy.*

Action Officer: Robbie Meddick      Approvals by Director / ED / DDG documented in notes in TRIM  
Area: ERP  
Telephone: 07 38360997



- Professor Batterham is fully supportive of an approach whereby the trials continue, subject to a satisfactory risk-based approach to demonstrate the validity of the self-cleaning cavity approach.
- The paper by Professor Batterham does highlight differing opinions to the ISP, particularly in relation to the proposal that UCG should be considered at depths greater than 600 metres. It notes that the interim recommendations in the ISP report are overly conservative and could have been tempered with the caveat that, provided an appropriate risk-managed approach is adopted, operations should be permissible.

**UCG proponents: Environmental, Safety and Health, Prosecution and Litigation**

- Detailed information on the environmental, safety and health, prosecution and litigation issues associated with Linc Energy (and the other UCG trial proponents) is included at Attachment 1.

**• CONSULTATION**

- DNRM.

**• BACKGROUND**

- The ISP provided its final report to DNRM on 30 November 2012. A copy of the report was provided to Linc Energy and the other UCG trial proponents (Carbon Energy, Cougar Energy) on 26 February 2013.



Jon Grayson  
Director-General

Comments (Premier or DG)

Released under RTI

Pages 20 through 22 redacted for the following reasons:

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Exempt Sch.3(7) Legal Professional Privilege

Released under RTI - DPC



**Sarah Partosh**

---

**From:** Campbell Newman <newman@lnpqlld.org.au>  
**Sent:** Wednesday, 28 March 2012 10:29 AM  
**To:** The Premier  
**Subject:** FW: Wild rivers

---

**From:** [s.73 Personal Information]@hotmail.com]  
**Sent:** Sunday, March 25, 2012 8:54 AM  
**To:** newman@lnpqlld.org.au  
**Subject:** Wild rivers

To Mr Newman

I hope you actually consider the affect coal seam gas mining will have on Queensland wild rivers. By removing the Wild river protection Act you're a condemning our rivers. The damage that you will cause will be irreversible. Therefore I hope that you honestly consider what it better for Queensland.

You have to options to consider 1. Keep our wild rivers safe from harmful mining. This will protect Indigenous park ranger jobs, local farming families and the overall health of our water ways. Or 2. Open our rivers to dangerous mining and permanently kill and destroy the rivers. This will then cause the Indigenous rangers to lose their jobs and farming families will lose the livelihood.

I urge you Campbell Newman to choose the right option which is clearly option 1. It will ensure the safety of our rivers and all those people and animals that rely on the rivers to survive.

Yours sincerely

[Redacted Signature]

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No virus found in this message.  
Checked by AVG - [www.avg.com](http://www.avg.com)  
Version: 2012.0.1913 / Virus Database: 2114/4898 - Release Date: 03/27/12

## Sarah Partosh

---

**From:** s.73 Organisation [redacted]@bigpond.com>  
**Sent:** Thursday, 29 March 2012 6:58 AM  
**Cc:** Jon Krause; The Premier; mayor@scenicrim.qld.gov.au; Derek Swanborough; kuringgai@parliament.nsw.gov.au; RossBrown@kyoglevet.com; Robyn.Parker@parliament.nsw.gov.au; derm@ministerial.qld.gov.au; leader@lnpql.org.au  
**Subject:** Re: Lions Rd pipeline and fauna

Dear ministers and councillors

After my third attempt at eliciting some answers from Metgasco about what safeguards they will be putting in place for wildlife with the Lions Road CSG pipeline, I've still heard nothing from them. We should not be left in the dark for so long about something that seems likely to impact on the natural values, lifestyles and businesses both sides of the border.

Since quite a few of us are getting very worried about the potential impacts, and are very unclear on what exactly happens during and after construction, we would be most appreciative if you could help us find some answers

We are not opposed to the mining industry generally, and appreciate its contribution to our country's wealth, including share-holdings in our seniors' retirement funds etc., but we need to be kept informed of the local and regional potential impacts and how these are to be addressed.

Regards

[redacted]  
On 22/03/2012, at 6:17 PM, [redacted] wrote:

Dear Sir/Madam

This is the third time I am sending these queries on behalf of the [redacted] (since our wildlife does not understand political boundaries we are concerned also with what happens to neighbouring forests below the border .

This time I am also cc-ing to other parties who may be interested in following up on similar questions (and hopefully informing [redacted])

[redacted] members are very concerned about the potential effects of the pipeline on local wildlife, and want to know what mitigating measures your company will be taking..

Since my initial queries I have heard that your company will be tunnelling underneath Running Creek. Residents nearby tell me that in extreme flood conditions the ground shakes here like a minor earthquake - have your engineers considered this and can ensure no damage causing leakage into groundwater?



An additional question for the section through the Border Ranges National Parks (part of the World Heritage forests, and the only fully-forested link between the western and eastern halves of the Border Ranges NP) is whether you can absolutely guarantee that the pipeline will disrupt only the road, and not the surrounding forest? Many of us find it hard to imagine the pipeline taking as many twists and turns as the road currently does, and this section of road is extensively used by wildlife, including a number of the species specifically mentioned in the World Heritage values literature pertaining to this region.

My original message follows:

Dear Sirs

The members of s.73 Organisation are concerned about a number of factors regarding wildlife and the construction of the Lions Road CSG pipeline (which happens to run through one of Australia's biodiversity 'hotspots')

1. Will it actually be just a pipeline or is there likely to be a number of feeder stations constructed along this route (either by Matgasco or other companies)?
2. How do you propose to cross the creeks in a way that will ensure the pipeline is not damaged and also protect the integrity of the creek and adjacent vegetation? Those of us living in southeast Queensland know how dramatically the waters of Christmas Creek, Running Creek and others are hurtled down the valleys, uprooting trees, tossing large boulders along, destroying bridges and roads etc. Damage to the pipeline is something your company surely does not want, and such damage could also pollute the water throughout the rest of the catchment. If tunnelling under the creek, do you propose to somehow divert the course of the creek while doing so, and how? How much riparian vegetation will be removed during the construction?
3. Many thousands of animals have been falling into trenches in other parts of Queensland where such pipelines are laid. Many have been rescued: many haven't. Are you intending to erect temporary wildlife-proof fences along each side of the trenches, especially at night and especially in localities of very high biodiversity such as the border region of NSW and Qld? Will spotter-catchers be employed to rescue animals throughout construction?
4. Will the pond opposite the turnoff to the Border Loop (Lions Road, NSW) currently so rich in froglife, and which appears to be the point at which the pipeline actually joins Lions Road, be drained or otherwise affected during the construction?
5. What happens re habitat restoration after the laying of the pipeline? We have heard that everything will be cleared to a width of 30m, except for the section of Lions Road adjoining the Border Ranges National Park. This will interfere with the natural movement of wildlife apart from those species which are strong fliers or comfortable traveling across open, altered landscapes (very many species do not fall into either group). National Parks and other conservation areas provide essential protection, but many species need to move across boundaries (finding food, genetic interchange, seeking new territories, regular migrations, nomadism etc.). Will wildlife corridors be re-established at multiple points along this route? Do you have any provisions in the interim to assist animal movement during construction (e.g. glider poles, or leaving some habitat strips crossing the pipeline)?
6. Has an extensive fauna survey been conducted? Environmental consultancies often result in very inadequate information because they are conducted over only a few days and often in one season. [redacted] holds some information on local wildlife and links to others which could be of assistance here in working out a plan to minimize disruption, but we suspect that there is much relevant information yet to be gleaned.
7. Has the IUCN been notified about the pipeline passing through World Heritage forests?
8. Approximately how long will it take to construct each km of pipeline?

Yours sincerely

Page 26 redacted for the following reason:

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s.73 Organisation

Released under RTI - DPC



**Sarah Partosh**

---

**From:** Premiers Master  
**Sent:** Friday, 30 March 2012 1:54 PM  
**To:** The Premier  
**Subject:** FW: Coal Seam Gas and Futures Studies

**Importance:** High

Daniel  
App Team, Department of the Premier and Cabinet  
+61 7 303 30608

-----Original Message-----

**From:** Premiers Master  
**Sent:** Wednesday, 28 March 2012 12:59 PM  
**To:** Premiers Master  
**Subject:** Coal Seam Gas and Futures Studies  
**Importance:** High

**Subject:** Coal Seam Gas and Futures Studies

**Name:** s.73 Personal Information  
**Email:** [redacted]@gmail.com

-----  
**Message:**

Dear Mr. Newman

Firstly congratulations on your recent election.

Below is a link to a recent study at the University of Sydney that argues that our approach to Coal Seam Gas exploration is not as wise or thoughtful as it could be.

The opportunity exists for us to take a different approach to the future of CSG. It so happens that the University of the Sunshine Coast has some of the world's leading practitioners of the discipline required to address this challenge of planning the future for difficult or contentious projects. They belong to the Futures Studies program (which I am studying), and can offer profound insight into how to better mitigate the risks of a project such as CSG.

I hope someone bothers to read this and actually digest the information. We have a responsibility to future generations, and CSG fails that test.

here is the link: <http://www.physorg.com/news/2012-03-current-coal-seam-gas-approach.html>

Sincerely,

[redacted]

## Sarah Partosh

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**From:** Premier <premier@ministerial.qld.gov.au>  
**Sent:** Tuesday, 3 April 2012 2:46 PM  
**To:** The Premier  
**Subject:** FW: Moratorium on coal seam gas and liquid natural gas mining in Australia

**From:** premier@nsw.gov.au [mailto:premier@nsw.gov.au]  
**Sent:** Monday, 2 April 2012 9:47 PM  
**To:** Premier  
**Subject:** Moratorium on coal seam gas and liquid natural gas mining in Australia

Dear Minister

I object to the Federal and State governments' broad approval of coal seam gas exploration and LNG processing throughout our farm, conservation and water catchment lands, and demand all CSG drilling and extraction be suspended until these issues are resolved:

-Given the recent csg contamination incidents in the Queensland Surat Basin by Australia Pacific LNG, Cougar Energy in Kingaroy and AGL in the Hunter Valley NSW, it is clear the exploration companies are given far too much autonomy. Authority, access and cost reimbursement must be given to non-pecuniary environmental organisations to monitor the companies' gas exploration and extraction.

- A study of Environmental Assessments submitted to the Department of Planning reveal that many lots for core drilling and extraction are selected because they are already on disturbed land, and given the environmental nod because according to the exploration company paid assessor, no endangered fauna or flora reside on that lot/s. Yet the lots are not monitored for a full four-season cycle, nor wildlife migratory movement, nor the impact on the biodiversity, soil fertility & water purity on adjacent lots and 'downstream.' Full environment impact assessments need to be conducted by non-pecuniary, fully qualified professionals from a bank or pool of individuals who won't be penalised or blacklisted in the future for submitting a negative or pro-development assessment.

- Fines for environmental damage should exceed the potential profits generated by the deliberate or accidental damage, and should be fully enforced. (eg a \$100,000 fine for illegal land clearing will not dissuade a developer that is likely to make a \$2,000,000 profit on the degraded and likely to be rezoned land)

- State and Federal legislation, such as the NSW State Environmental Planning Policy 2007 should be amended to conserve and protect our water catchment, conservation lands and agriculture lands from mining, petroleum and gas exploration. It is incredibly short-sighted and avaricious for Mining and Petroleum exploration to have priority over the environment and agriculture. What good will billions of \$ profit to overseas companies such as Santos or Peabody do for Australia if we can no longer trust our water supply, and have to import the bulk of our food to feed our nation?

-All Federal and State governments need to employ a system of transparency for the planning of degradation, exploration, extraction and impact on the land that we all own. The CSG industry as it stands in Australia may generate billions of dollars for large overseas companies for the next 30



years, but is likely to cost our country many billions of dollars in lost farm production, contaminated drinking water , health issues and biodiversity loss.

*No mining should be done in water catchment areas full stop. No exceptions.*

Yours faithfully,

s.73 Personal  
Information

[redacted]@bigpond.com

P.O.box [redacted]

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10<sup>th</sup> April 2012

## Coal Seam Gas Now Buying Our Silence

QGC have purchased over 118,000 ha of prime land in our area, with approx. 45,000 ha under negotiations, making them one of the largest owners of Prime Land in Qld with their goal being 250,000 ha.

Why, because it is cheaper than conforming to government regulations or working with the local community.

They are literally stripping our community and buying our silence. They are like the railway companies in the America in the 1900's, pushing their way through. We will be like the old time England where we rent our land from the master.

It is cheaper for them to purchase land than to pay our farmers a fair rent price. Additionally and larger cost savings to the gas company, they can hide the CSG impact by the owning land. Reducing the costs of compliance and reducing complaints. No fines for breaching policy. Have you noted the padlocks on their gates? They can hide their EIS breaches.

An example of this cost saving is their directive not to mulch vegetation unless requested by the owner (QGC) (Coal Mines can't do this or Power companies under the power act. They work with the community).

This means of the 3,000km of pipelines, 2,000km of access tracks will all be pushed up leaving bare earth sediment issues and creating fire hazard around live pipelines and gas wells. With La Niña now officially over and the dry returning fire is a real threat. This is only describing damage created by QGC not to mention Origin, Santos and Arrows damage yet to start. How much is our community worth, how many hectares will the other buy?. The mining towns are standing up to the big plays, we need to do the same.

Now they are discussing cost saving in dust suppression by reducing water on their roads. What is next?

Are we and our government protectors going to allow some young engineers in Brisbane design our community? No we are allowing he/she to design a gas field. They weren't here through the last drought.

Don't sell or if you then at least reevaluate the value your land is to QGC and the others.

They did not mention this "strategy" in their community meetings!

s.73 Personal Information

Chinchilla



**Sarah Partosh**

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**From:** s.73 Personal Information @dodo.com.au>  
**Sent:** Thursday, 12 April 2012 12:49 PM  
**To:** The Premier  
**Subject:** Coal Seam Gas in Australia

Dear Campbell

You came to Beaudesert recently and I met you at Jon Krause' headquarters.

We had a quick chat about coal seam gas.

I trust that you will make sure that the Scenic Rim area is never bothered with Coal Seam gas exploration or drilling ever again and the whole area is hoping for legislation that protects this area for the future.

We are also very interested to see if there will be a moratorium or some sort of hold on Coal Seam gas permits until the science is fully examined and the possible risks to the environment including our air and water, have been determined.

This is a major issue in this area. It cannot be underestimated, as there is widespread concern about our future. The issue of Coal Seam Gas has been discussed in all of the 'meet the candidates' sessions that I have, so far, attended.

Good luck with your new role. I look forward to hearing from you.



## Sarah Partosh

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**From:** Premier <premier@ministerial.qld.gov.au>  
**Sent:** Friday, 13 April 2012 2:47 PM  
**To:** The Premier  
**Subject:** FW: Coal seam gas we are all screwed

---

**From:** [s.73 Personal Information]@bigpond.com]  
**Sent:** Friday, 13 April 2012 8:11 AM  
**To:** 'LNP Leader Campbell Newman'  
**Subject:** FW: Coal seam gas we are all screwed

I would like to know your thoughts on this.

Thankyou [REDACTED]

---

**From:** [REDACTED]  
**Sent:** Friday, 13 April 2012 6:59 AM  
**To:** "Undisclosed-Recipient:;"@connect.com.au  
**Subject:** Fw: Coal seam gas we are all screwed

**Subject: Coal seam gas we are all screwed**

If you live in Brisbane and thought you'd never have to worry about Coal Seam Gas in YOUR back yard, think again.....

Coal seam gas tenements in Brisbane suburbs

A large coal seam gas exploration permit has been granted over a large part of Brisbane's western suburbs.

The permit, known as EPP641 is owned by BNG Pty Ltd which is a subsidiary of the large CSG company, Arrow which is, in turn, owned 50-50 by the multi-national corporations, PetroChina and Shell.

Suburbs of Brisbane covered by the EPP include Moggill, Pullenvale, Karana Downs and Brookfield and the tenement comes within a kilometre or so of the Kenmore shopping centre.

Lock the Gate Alliance president, Drew Hutton, said it should come as no surprise that resource companies would look for coal or gas in metropolitan areas.

"Dart Energy, also owned by PetroChina and Shell, is drilling in the inner suburbs of Sydney, there are coal seam gas EPPs over Toowoomba, the Acland coal mine expansion has taken out the town of Acland and there are coal exploration permits over parts of Maryborough," Mr Hutton said.

"These companies don't like to acknowledge limits and the state government is reluctant to impose them on resource companies.

"For example, Arrow's recently-completed environmental impact statement allows for coal seam gas wells to be placed within 200 metres of someone's house.

"Anyone living in Brisbane who thinks they are necessarily removed from the risks of high-impact resource extraction near them should think again," Mr Hutton said.

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## Sarah Partosh

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**From:** Premier <premier@ministerial.qld.gov.au>  
**Sent:** Friday, 13 April 2012 2:49 PM  
**To:** The Premier  
**Subject:** FW: CSG and Jeff Seeney

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**From:** [REDACTED] [mailto:[REDACTED]@bigpond.com]  
**Sent:** Thursday, 12 April 2012 3:25 PM  
**To:** Premier; Deputy Premier; Agriculture; Environment; Natural Resources; Energy and Water  
**Subject:** CSG and Jeff Seeney

Dear LNP MP's of Qld,

While watching Channel 10 News last night (11<sup>th</sup> April 2012), I saw Mr Jeff Seeney addressing Representatives of the Energy and Gas Corporations.

I was disgusted to hear him say that the subject of CSG is a "plaything for political opportunists who trade in emotions and misinformation". After only a few of weeks in Government, how dare he make such a statement when Queenslanders have real concerns regarding CSG issues.

Rural and City Folk of Queensland have done research and are disturbed that our Land, our Important Food Growing Agricultural Land, our Water (inc Great Artesian Basin) and our Air are under threat by CSG Corporations. I do not want any of these resources compromised or destroyed by CSG. As yet, CSG technology is not a safe proven science. I want sustainability not contamination for the future generations of this state.

As Public Servants, who have recently taken an oath regarding the duty to the people of Queensland, you are obliged to act on our behalf. As Public Servants, you are responsible for the Care of the Land, Air and Water of this great State. As I have lived in Queensland for 61 years since I was born, I demand that more independent investigations be conducted regarding all the risks involved with CSG. I have also sent similar correspondence regarding these issues to the previous Labor Government.

I know that the Rural and the City Folk of Queensland are all FRACKED because the Energy Corporations and the Politicians do not give a FRACK about the Land, Air, Water and the Sustainability of the Farmlands that grow our Food. Unfortunately, the Corporations have been running and ruling this State for too long....

As a member of the community, I vow to NEVER change my views and opposition to CSG Mining.....

Yours faithfully,  
[REDACTED]

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## Sarah Partosh

---

**From:** Premier <premier@ministerial.qld.gov.au>  
**Sent:** Friday, 13 April 2012 2:51 PM  
**To:** The Premier  
**Subject:** FW: Safeguarding people and the environment against CSG extraction

---

**From:** [s.73 Personal Information]@hotmail.com]  
**Sent:** Thursday, 12 April 2012 6:58 AM  
**To:** Premier  
**Subject:** Safeguarding people and the environment against CSG extraction

Dear Premier,

I am writing to express my concerns about the rapid expansion of the coal seam gas (CSG) industry in Queensland.

As an Australian whose home town is Roma (in the Surat Basin area being exploited by the CSG industry), I am angry at the failure of the previous Queensland Government to protect the interests of people and the environment.

I am calling on you to:

1. **Curtail expansion of CSG extraction** until it can be demonstrated that the risks are manageable.
2. **Implement measures without delay to safeguard the environment and communities** from existing CSG operations.

You and the Government must be aware of the unacceptable risks of these developments, and the strong and growing public opposition to them.

It is utterly reckless and shortsighted to be approving these developments before environmental protection can be guaranteed. **The short-term economic gains of CSG extraction cannot compensate for the potential cumulative environmental damage and longer term costs.**

CSG extraction:

- Involves damage to aquifers, and the contamination and depletion of water supplies;
- Will diminish the productive capacity of food-producing land;
- Threatens the health and well-being of people and wildlife; and
- Is inconsistent with steps taken to reduce carbon pollution.

The CSG industry is not compatible with existing agriculture, tourism and other businesses that provide a broad regional economic base and sustainable employment for many people.

CSG extraction is currently being allowed in Queensland before science has had time to study the risks and cumulative impacts. These premature authorisations, unsupported by proper regulation, seriously threaten the environment, rural amenity, industries and food production capacity. **The effects could potentially be devastating and may last for centuries.**

**Australia does not need CSG.** Fugitive emissions during CSG extraction and transportation may make its total lifecycle carbon emissions higher than those from coal when measured over a 20 year period. Australia is already experiencing the effects of climate change caused by burning fossil fuels. Climate change will have an increasingly severe environmental and financial cost for Queensland and Australia.

**The cost of delaying a transition to clean energy technologies is immense.**

It is imperative that the Queensland Government act prudently and swiftly to guide the economy into a low carbon era and towards sustainability.




You and the Queensland Government have a duty to ensure:

1. protection of our water resources, including underground water sources;
2. protection of our agricultural land for food production;
3. protection of our bushland and wetlands;
4. protection of our Aboriginal and cultural heritage ; and
5. protection of the health of all citizens;

The people of Queensland have recently elected you and your Government to govern in the long term interests of all residents.

**The Queensland Government has a responsibility to take effective action without delay to safeguard people and the environment against CSG extraction.**

Sincerely,

  
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## Sarah Partosh

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**From:** s.73 Personal Information @yahoo.com.au>  
**Sent:** Sunday, 15 April 2012 8:08 PM  
**To:** The Premier  
**Subject:** To Campbell Newman!

To Mr Newman

I spoke to one of your workers at your campaign office before the election. She assured me that you would place a moratorium on future CSG mining in queensland while a review on the

Please do what is in your heart and help the people.

Tell me why the big rush for gas? What is coming. I have no children of my own but do love my nieces and know there's a reason for the big gas boom.

If there's nothing coming why is the government sacrificing the water, land and drinking water for gas?  
I've seen gasland!!!

I won't stop asking and telling people. unless you tell me why and compensate me!

Released under RTI-DPC

**Sarah Partosh**

---

**From:** [REDACTED] s.73 Personal Information [REDACTED]@gmail.com>  
**Sent:** Monday, 16 April 2012 10:16 PM  
**To:** The Premier  
**Subject:** Reporting on Coal Seam Gas

Dude, not cool on the Coal Seam Gas issue.

Fully not in support.

Make jobs for things that are sustainable, because that'll make you a great government in the future. I'm usually all for you, and I believe you know what you're doing, but Campbell / the LNP you guys are wrong on this one.

Don't be dicks to the planet, it's just as necessary as all the rest of it.

Regards, [REDACTED]

Released under RTI - DPC



**Sarah Partosh**

---

**From:** s.73 Personal Information [REDACTED]@mac.com>  
**Sent:** Tuesday, 17 April 2012 3:49 PM  
**To:** The Premier; leader@lnpqld.org.au; newman@lnpqld.org.au  
**Subject:** Fwd: ARTICLE FROM 'THE AUSTRALIAN' NEWSPAPER COVERING SOME ENVIRONMENTAL IMPACTS FROM THE PROJECTED ARROW ENERGY COAL SEAM GAS / LNG PLANT

Mr Premier, I suggest that you put a sock in Seeney's mouth so that he can quietly read the national newspapers to see the real situation in Gladstone.

Seeney needs to return to Gladstone and personally apologise to all of those who have fought so hard to retain the GRB and Natural Environment right along the coast.

Do not allow him to return here if he is going to jump into bed with the senior Labor Party managers of the GPC and facilitate the removal of the GBRWHA.

We have fought too hard to allow people such as Seeney to destroy the environmental future of our Children, Grand Children and beyond. You obviously do not know what is really happening here but I can assure you that Seeney's actions are ensuring that the Labor Party are going to pick up a lot of seats in the Federal Election and it will be totally because of Seeney's big mouth and lack of knowledge or consideration for the people of Queensland or do you dispute the facts as they are revealed in the National Press.

[REDACTED]

Begin forwarded message:

**Subject: ARTICLE FROM 'THE AUSTRALIAN' NEWSPAPER COVERING SOME ENVIRONMENTAL IMPACTS FROM THE PROJECTED ARROW ENERGY COAL SEAM GAS / LNG PLANT**

<http://www.theaustralian.com.au/national-affairs/csg-plant-will-have-effect-on-reef-animals/story-fnaxx2sv-1226328230585>

# CSG plant 'will have effect on reef animals'

by: *Jared Owens*

From: *The Australian*

April 17, 2012 12:00AM

**ARROW Energy's coal-seam gas liquefaction plant will have widespread and "possibly irreversible" impacts on some of the Great Barrier Reef's critically endangered animal populations.**

The project's environmental impact statement, published by Arrow yesterday, predicts that up to 1.1 million cubic metres of sea floor will need to be dredged in waters off Curtis Island to accommodate the massive ships designed to ferry the resource to international markets.

Arrow's project, one of three liquefied natural gas plants slated for Gladstone's Port Curtis, represents a \$15 billion initial investment, is expected to employ more than 6000 temporary workers in its two construction phases and will hire 600 permanent staff to operate the facility.

But Port Curtis and its surrounding waters are also a habitat for several protected species of turtles, whales, dolphins, porpoises and dugongs, and conservationists are concerned about the more than 10,000 extra boat journeys required to service the plant each year.

The EIS study area is home to six of the world's seven surviving species of marine turtle, two of which, the leatherback and hawksbill, have been deemed "critically endangered" by the International Union for Conservation of Nature.

The area is situated entirely within a state-imposed dugong protection area, where herds of about 140 animals are known to feed on abundant seagrass.

Even if speed limits and propeller guards were imposed on vessels accessing the plant, Arrow's EIS says the impact of boat strikes on marine turtle and dugong

populations would be "widespread, long-lasting and result in substantial and possibly irreversible change".

However, the EIS says, the overall significance of boat strikes to turtles, dugongs and cetaceans would be moderate, defined as "short-term and result in changes that can be ameliorated with specific environmental management controls".

The public has six weeks provide feedback on the EIS.

Released under RTI - DPC





**Sarah Partosh**

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**From:** Warhurst, Di (SEN) <Di.Warhurst@aph.gov.au> on behalf of Committee, EC (SEN) <ec.sen@aph.gov.au>  
**Sent:** Friday, 20 April 2012 12:18 PM  
**To:** The Premier  
**Subject:** Senate Environment and Communications Legislation Committee: Inquiry into the EPBC (Independent Scientific Committee on Coal Seam Gas and Large Coal Mining Development) Bill 2012 [Provisions]



THE SENATE

**STANDING COMMITTEE ON ENVIRONMENT AND COMMUNICATIONS**

PO Box 6100, Parliament House  
Canberra ACT 2600  
Tel: (02) 6277 3526  
Fax: (02) 6277 5818  
Email: [ec.sen@aph.gov.au](mailto:ec.sen@aph.gov.au)

20 April 2012

Dear Premier

**Inquiry into Environment Protection and Biodiversity Conservation Amendment (Independent Scientific Committee on Coal Seam Gas and Large Coal Mining Development ) Bill 2012 [Provisions]**

Thank you for your submission relating to the above inquiry.

In accordance with Committee procedures your submission has been accepted and authorised for publication by the Committee. This provides your submission with the protection of parliamentary privilege.

Please note, publication of your submission includes it being loaded onto the internet under the name of the Queensland Government, but with contact details removed, and being available to other interested parties including the media.

The Committee prefers to make submissions public but will consider requests to keep a submission, or parts of it, or the author's identity, confidential. You have not indicated any concern about confidentiality, however, if you have concerns please contact the Secretariat urgently following receipt of this letter.

Information on the inquiry and submissions received by the Committee is available on the inquiry website at: [http://www.aph.gov.au/Parliamentary\\_Business/Committees/Senate\\_Committees?url=ec\\_ctte/epbc\\_coalseamgas\\_2012/index.htm](http://www.aph.gov.au/Parliamentary_Business/Committees/Senate_Committees?url=ec_ctte/epbc_coalseamgas_2012/index.htm)

At the conclusion of the inquiry, the Committee will report to the Senate. A copy of the report will be loaded onto the internet and may be accessed at the same web address.

If you have any other questions, please contact the Committee Secretariat via email at [ec.sen@aph.gov.au](mailto:ec.sen@aph.gov.au) or phone 02 6277 3526.

Yours sincerely  
**Sophie Dunstone**  
**Acting Committee Secretary**

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Ph. [Redacted]

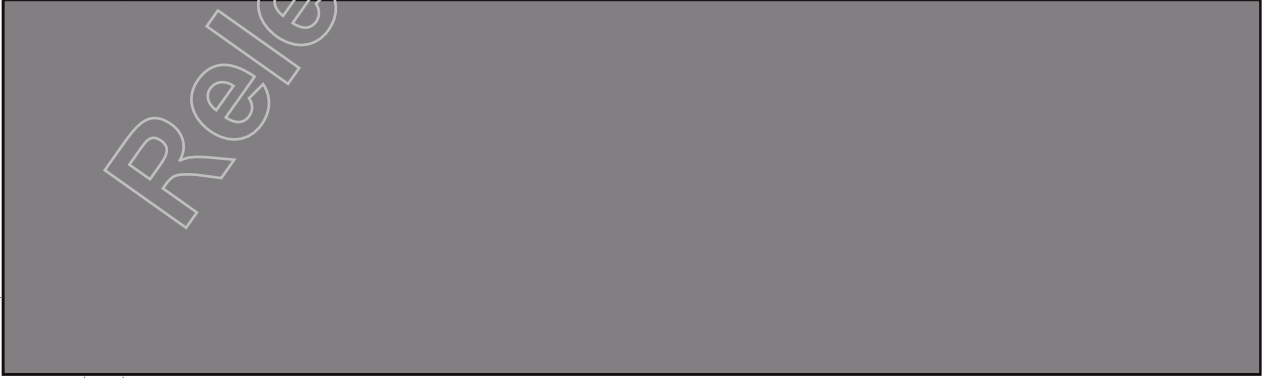
Dear Campbell,

Firstly, congratulations on your resounding victory in the State elections. I am normally a ALP voter, but did not vote for them in these elections, for several reasons, one of which was their attitude towards the CSG and coal industries intrusion into the Scenic Rim.



Many of the local people in the Beaudesert area voted for your man, Jon Krause, in this election, solely because of your stated views regarding CSG and coal in the Scenic Rim, ie( from the political leaflet enclosed with this letter). The whole community in our area cannot understand the reasons why the ALP Govt allowed exploratory drilling in this area.

Mt wife and myself would welcome you here, [Redacted], so that you can have a closer look at how beautiful this area is, and what a travesty it would be to have CSG or coal development in this area.





[REDACTED]

simply doing her bit to bring the issue to the public attention. We often feel "out here" that the urban population, having no direct exposure to the CSG and Coal industries, feel that it is not a problem that they have to deal with.

s.73 Personal Information

[REDACTED] which we felt was a price worth paying to bring awareness of the issues to the public.

Can we ask you to do 2 things for us. In due course I realise, as you are still settling into your new job.

1. Confirm that you and your LNP Government will "immediately undertake strategic land use planning to make sure the Scenic Rim is protected

[REDACTED]

Best of luck in transforming this wonderful state of ours into what it deserves.

Regards

[REDACTED]

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Pages 47 through 48 redacted for the following reasons:

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s.73 Personal Information

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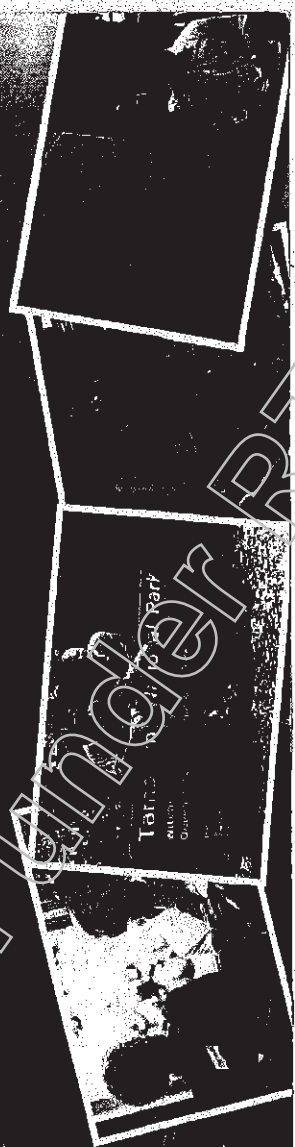
**Only the LNP has a plan to  
act immediately and decisively  
to protect the Scenic Rim.**

*Campbell Newman*

Campbell Newman  
LNP Leader

*Jon Krause*

Jon Krause  
LNP Candidate for Beaudesert



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**Aidan McLindon wants to  
postpone a decision on CSG for a year.  
Jon Krause and the LNP will  
act immediately to protect the Scenic Rim.**

1. If the LNP takes government, they will immediately undertake strategic land use planning to make sure the Scenic Rim is protected.
2. The LNP will nurture the Scenic Rim, fighting for a future based on tourism and agriculture.

**Protecting the Scenic Rim is too important to risk your vote with Aidan McLindon. Only a vote for Jon Krause will protect the future of our region.**

**It's time for a change. It's time to Get Queensland Back on Track.  
Find out more at: [www.jonkrause.com.au](http://www.jonkrause.com.au)**



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## Sarah Partosh

---

**From:** [REDACTED] s.73 Personal Information @tpg.com.au>  
**Sent:** Sunday, 22 April 2012 10:28 AM  
**Cc:** The Premier; Glass House Electorate Office  
**Subject:** Coal Seam Gas: First incidence of contaminated bore/aquifer in Pilliga, NSW

Julia Gillard, PM (send separately via Premier's website, cc's within my local State Parliament)  
Campbell Newman, Qld Premier  
Andrew Powell, MP, Minister

Below a letter from a local farmer in the Pilliga, NSW [REDACTED]  
[REDACTED] CSG exploration fields.

I am a student at USC Qld and have looked into the research done on coal seam gas mining and found many reasons to be very concerned on a number of levels due to the unsubstantiated statements and obvious complexities and known and unknown effects of the drilling process as well as the unavoidable above ground impacts.

I urge Australia to place a moratorium on this destructive industry now and move into renewables immediately.

Our future, our lives and our country are at stake from the longterm consequences of this industry as it stands.

Regards,

[REDACTED] 22 April 2012

[REDACTED] Letter:

21 April 2012

"Am I the first in NSW to suffer Aquifer Contamination from the CSG Industry?"  
[REDACTED]

To All,

Guess what I have just received back as being a major problem with my Bore Water?

Before I tell you, let me say this my bore is 72 m deep and has a standing water level of 57 m, and up until one month ago pure (85 total ppm), low salt (22 ppm), with alkalinity total of CaCO<sub>3</sub> (9 ppm) and sulphate (0.51 mg/L), clear as crystal and no smell or taste.

The bore is located in the Southern Recharge Zone of the GAB (Great Artesian Basin) and just 1500 metres from the Dewhurst 8 Pilot Production Wells located on the North Eastern side of the PEL known as 238 (SANTOS)

my water was of exceptional quality up until 1 month ago when it suddenly developed a very nasty smell (something between rotting vegetation and sewer-like old stagnant storm water drain), and left a metallic taste in the mouth, also my water now has a pH of 5.6, where as before we had a slight Calcium build-up now that is going. These Bacteria produce acid forming by-products which are to a large degree soluble in water.

Well, today Santos came back to me with a brief note from a Company called Baseline: My bore is contaminated with Sulphate Reducing Bacteria (RBR), most probable number 2400 SRB per 100mL). And today while a Sample was being taken there were "floaties" in the water and it stank.

A letter from the laboratory note tells me that my water should not be used for domestic purposes, it also says the most likely contamination source is animal nutrients, but we have no intensive feed lots on or within 50 km of our place, so Santos is a bit shy there. We also have a very thick clay barrier located no more than 1000 mm between us and the material below and the first water aquifer located as indicated by

our drill log (and I was there the whole time the well was drilled) was about 50 m from the surface. So you can rule out pollution from the free range stock on my land.

Next to look at is what activities have been done locally of late, and that brings me to 2 dams (one on my place that is 2.75 m deep) and one next door (depth unknown, but it is at least deeper than the scrapper that dug it) and the CSG Pilot, also next door.

Biocide Compounds are often added to water to inhibit the microbial activity of the Sulphate Reducing Bacteria in order to avoid anaerobic methane and to minimise potential production loss.

This Biocide is also added to the Drilling water to reduce contamination of the Aquifers during the Drilling process. Eastern Star Gas made a big thing of this when trying to convince the public at large how safe their drilling methods were.

Santos even said they had a spill of a Biocide Chemical in December 2011 (250 litres).

Well, I wonder now if that Biocide has not escaped into the Aquifer system that supplies my Stock and Domestic Bore and what I am now seeing are the results of killing off the natural Sulphate-Reducing bacteria and their bodies coming through the system, or for some reason they have had a large population explosion because they love concrete and iron and guess what are plentiful in a CSG FIELD? \_\_\_\_\_

All I know for sure is my water supply is stuffed and the cause of it is Sulphate-Reducing Bacteria and they did not come from the free range sheep on my land.

Not all aquifers are rock structured, some are old filled over river and lake beds and my bore bought up large stones and sections of iron stone along with sand while being developed for 6 hours straight, so my aquifer falls into the non-consolidated rock group (as described above).

You be the judge of what I am saying and please correct me or provide more information if you wish.

Am I the first in NSW to suffer Aquifer Contamination from the CSG Industry?

[REDACTED]

s.73 Personal Information

[REDACTED]

Australia

Phone: [REDACTED]

iPhone: [REDACTED]

[REDACTED]@gmail.com

[REDACTED]@tpg.com.au

[http://twitter.com/\[REDACTED\]](http://twitter.com/[REDACTED])

[http://\[REDACTED\].wordpress.com/](http://[REDACTED].wordpress.com/)

[http://www.facebook.com/\[REDACTED\]](http://www.facebook.com/[REDACTED])

s.73 Personal Information

Postal Address



Property Address



FAX [Redacted]

19<sup>th</sup> April, 2012

Premier Campbell Newman

Postal Address

PO Box 15185

City East Q 4002

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Dear Premier

I write with urgency upon your great victory, items which require immediate attention in the south east corner of Queensland – especially in Strathine, Brendale and Warner.

It is now impossible to subdivide home sites and industrial land because of the following problems.

1. Coal seam gas (a moratorium is necessary)
2. Koala bear legislation (needs to be repealed, because it has made land worthless) I have subdivided in the south east corner of Queensland for 60 years and have never seen a koala.
3. Elimination of flying foxes (Hendra virus and Liesie)
4. Elimination of fruit flies
5. Urgent update of Strathpine Road, Gympie Road – Bald Hills flats, the congestion of Gympie road through to Petrie. Access to and from Strathpine is almost impossible from the Bruce highway.

Release

6. Head works charges are completely out of hand and has becomes extortion
7. Penalty rates should be eliminated or else shopping centres will close. Many shops are closed now or will be when their leases expire. For eg which shop at Westfields would you like for free?

I therefore request a round table conference without delay, with yourself, Barnaby Joyce, Peter Dutton, Seath Holswich, Mark Bowden (son), Terry Orreal – past candidate for National party, Mayor of Moreton Bay Council, Bruce McIver (President LNP) and all related ministers.


In brief the coal seam gas operations are fraudulent and destructive. It is claimed by the operators that they will replace all the damage that has been done and water stored. (Impossible) It will ruin all underground streams, which means farming land will be worthless.

Labour has lost its way, but the LNP should have stopped them for the sake of Queensland, BUT it is not too late... I hope.

The sooner we meet the easier it will be to prioritise the work to be done.

Yours sincerely

s.73 Personal Information





**PREMIER'S BRIEFING NOTE**

*Policy*

Tracking Folder No. TF/12/10030

Document No. DOC/12/81578

**To: THE PREMIER**  
**Date: 30 April 2012**  
**Subject: Coal Seam Gas: Draft Underground Water Impact Report for the Surat Cumulative Management Area**

**Approved / Not Approved / Noted**

Premier .....

Date ...../...../.....

Date Action Required by: ...../...../.....

Requested by: .....  
(if appropriate)

**• RECOMMENDATION**

It is recommended that you note:

- the following Ministers have been briefed on the content of the draft Surat Underground Water Impact Report (UWIR):
  - o the Honourable Jeff Seeney MP, Deputy Premier, Minister for State Development, Infrastructure and Planning
  - o the Honourable Andrew Powell MP, Minister for Environment and Heritage Protection
  - o the Honourable Mark McArdle, Minister for Energy and Water Supply
  - o the Honourable John McVeigh, Minister for Agriculture, Fisheries and Forestry
  - o Ms Lisa France, Assistant Minister for Natural Resources and Mines,
- that the draft Surat UWIR may be released for public consultation on 10 May 2012, and the final UWIR is due to the Chief Executive of the Department of Environment and Heritage Protection (DEHP) by 18 July 2012.

**• KEY ISSUES**

- Chapter three of the *Water Act 2000* (the Act) requires the Queensland Water Commission (the commission) to issue an UWIR 14 months after a Cumulative Management Area (CMA) is declared (the Surat CMA was declared on 18 March 2011). However, section 370 of the Act provides for the Chief Executive to extend this timeframe and this has already occurred once (to 18 July 2012).
- The contents of a UWIR are specified in the Act (section 376) and there are also statutory requirements for at least 20 business days of public consultation prior to finalisation.
- Under the Act, Coal Seam Gas (CSG) operators are required to enter into 'make good agreements' with registered bore owners. These agreements set out the operator's obligation to maintain water supply in the event that an existing bore has its production capacity impaired because of draw down on the supply aquifer.
- Finalisation of the UWIR triggers a mandatory process for make good agreements for bores identified by the report as likely to be impaired within three years.
- The draft UWIR prepared by the commission:
  - o is a detailed document which, while it satisfies the requirements of the Act, is not 'user friendly'
  - o predicts that, of the approximately 21 000 private bores that exist in the CMA, 85 may be impaired by more than the trigger threshold (a drawdown of more than 5 metres) within three years, and 528 bores may be impaired in the long term (i.e. any time after three years)

Action Officer: Bernadette Zerba  
Area: Environment and Resources Policy  
Telephone: 54879

Approvals by Director / ED / DDG  
documented in *notes* in TRIM

- predicts that, in addition 13 identified natural spring complexes (out of 330) and 22 water course springs (out of 43) may be affected. However, only five spring complexes are predicted to exceed the trigger drawdown of 20 centimetres in the long term.
- The Department of the Premier and Cabinet (DPC) understands that the relevant Ministers (notably the Deputy Premier and Ministers Cripps and Powell) have agreed that the draft UWIR be released for public consultation as soon as practicable. DPC also understands that the Deputy Premier has briefed members of the Surat Basin Engagement Group on the release plan (including proposed release dates and that pre-release briefings with CSG industry and community members are intended immediately prior to release).
- Community concerns that are likely to emerge with release of the UWIR include the predicted impacts on aquifers (especially the Walloon Coal Measures). Opponents of CSG extraction are likely to claim that it confirms the uncertainty regarding impact on underground water, shows that the impact may continue for at least 80 years and doesn't address water quality issues.
- Concern has also been raised that there may be many bores, which are not mapped. DPC has been advised that the bulk of water bores in the Surat Basin are for stock and domestic purposes. This take does not require a licence, but is authorised under a Water Resource Plan. It is a simple matter for these to be mapped and covered by make good agreements if in impacted areas. Regional officers have advised that there is a very low probability of intensive water users (for example, irrigation) being un-licensed.

**Comments** (*Premier or DG*)

Jon Grayson  
Director-General

Ref: 0866.08.05.2012

JH/ed

8 May 2012

The Hon. Campbell Newman MP  
Premier of Queensland  
P.O. Box 15185  
CITY EAST Q. 4002

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Dear Premier

Congratulations on your appointment as Premier of Queensland from the [REDACTED]

I would like to address a few points about which the [REDACTED] has an ongoing dialog with the Queensland Government as well as a new issue that we would like you to take on board.

- The Patient Transport Subsidy Scheme: We have made repeated representations to Government and I believe this was one of your election promises. We would like your assurance that the subsidy will be increased as the cost of accommodation in major cities, which is where most of us have to travel to for medical appointments, is way above the level that the subsidy covers, thus increasing the anxiety associated with medical problems.
- The Chinchilla Hospital and its ability to deal with births: We have received information from the previous Government which conflicts with that of the Doctors at Chinchilla, regarding the preparedness of this hospital to accept women about to give birth. This is a major issue in this region, as I believe Miles Hospital gave up its birthing facility to enable Chinchilla Hospital to be upgraded. Chinchilla Hospital has been listed as level 1, which means no planned births and no operating theatre available for local staff to support maternity services. The area that the Chinchilla hospital covers for births is very extensive. Families need to know that they are catered for *locally* without the need for mothers to be away from home for extended periods, awaiting birth.
- Coal Seam Gas: [REDACTED] advocates a moratorium on production until all the questions on water are answered. The LNP may have a very different policy to that of the [REDACTED] however, I would like to put forward some observations concerning the land access issues. These issues were raised with Mr. Springborg and Mr. Hobbs in Miles, Qld, some time ago. A major problem is that neither

company employees nor Government officers, who ensure compliance, totally understand the practicalities. For example, water and other fluids run off the drill site onto the surrounding area and then into "melon hole" country where it can make its way for long distances across surrounding land and eventually into water ways. Also there is the possibility of bringing soil-borne diseases onto properties via vehicles, boots etc. Department officers, who are checking the adherence of hundreds of conditions also don't understand the rural sector in most cases, and as they are few in number compared to the number of problems, cannot answer within an optimum time frame. Whilst a number of land holders are happy to have coal seam gas and coal mining on their properties, an increasing number are not. Addressing some of these issues may alleviate future turmoil; we must ensure that our land and water resources and ultimately our cattle and grain industries are fully protected from any chance of contamination resulting from these industries.

New events have occurred since I began writing.

i) The accidental release of drilling fluid from a site near Chinchilla in the vicinity of the Condamine River. This may have been prevented if it was mandatory for all fluids to be pumped into tanks instead of into ground sumps. This incidence reinforces our argument that not enough care is being taken by the companies to protect our precious water.

ii) The appointment of a Commission to improve the situation between Gas companies and the community, I think you will find that land holders who do not wish to have CSG anywhere near their properties will be very sceptical about this move. On reading the criteria for the Commissioners, it appears skewed to the needs of the gas companies.

- The final matter I would like to raise is an issue which is starting to impact on our Association. The Land Tenure position of at least 120 of our Buildings, whether they be they Railway land, health reserve etc.

We have lost a building on Thursday Island because the local council took possession of it. They claimed we were not using the land for its intended purpose, even though our branch was in recess and we had rented it to another community group.

In other cases, following amalgamation, larger Councils have tried to take our buildings for their own use as they are on what has now become Council reserves instead of State reserves.



A further problem now is that we have buildings occupying land in very popular areas (which it was not at the time we built) that are in need of expenditure and in some cases expansion, and we are seeking some assurance that the government will not sell this land or that we may be able to purchase some of it on very favourable terms.

I would like the opportunity for my fellow State Executive Officers and myself to meet with you to discuss these and other rural and women's issues.

Thank you for your time and interest in these, very important issues.

Kind regards





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8 May 2012

The Hon Campbell Newman, MHA,  
Premier of Queensland  
PO Box 15185  
City East Qld 4002

Dear Premier,

On behalf of the [redacted] I am writing to congratulate you on your election as a state member of parliament and as our new Queensland Premier.

The [redacted] was established in early 2010 to represent landholder, community groups and individuals with serious concerns about the unrestrained development of the coal seam gas industry across Queensland and concerns about the associated environmental, health and social impacts.

We have enjoyed frank and candid dialogue with various members of the LNP over the past couple of years and we were heartened to see some of our concerns considered as part of your Policy for a Sustainable Coal Seam Gas Industry. We sincerely thank you for the time and interest you personally have shown in our concerns. We congratulate the Government on moving quickly to establish the Gasfields Land and Water Commission and we hope to have the opportunity to have input into the group's charter to ensure its relevance to achieving sustainable future for our rural communities.

We recognise that this is not a simple issue. However we believe, it is vital that the government ensures that the correct regulatory framework is in place and that the coal seam gas industry gets the science right before steaming ahead with more development. Development must be proven safe and sustainable. We hope to have the opportunity to work with Government to continue to highlight issues relating to landholders, our lifestyles, our livelihoods and our ability to produce future food and fibre. Our members seek to be assured that the 'balance of power' is not skewed towards resource companies.

While we recognise that you will have a very busy schedule before you, we would like to take this opportunity to formally invite you to visit farming properties in the Surat Basin region in the near future to see first-hand the [redacted] concerns about the impacts of the industry.

We will be in touch with your appointment secretary within the next few days to arrange a visit or, if that is not possible, a meeting in a location that is convenient to you. We are also extending the same invitation to your newly appointed Ministers

- John McVeigh: Minister for Agriculture, Fisheries and Forestry
- Andrew Powell: Minister for Environment and Heritage Protection



Release

s.73 Organisation

- Andrew Cripps: Minister for Natural Resources and Mines
- Mark McArdle: Minister for Energy and Water Supply

Again congratulations on your election and we wish you well as you move forward with plans for the future prosperity and sustainability of our state.

Yours sincerely,

Pages 62 through 63 redacted for the following reasons:

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s.73 Organisation

Released under RTI - DPC



May 10, 12

Dear Mr Newman,

Congratulations on your triumph in the state election. You have the task ahead and I am hoping you won't be a disappointment like Beattie and Blyth.

I represent the [REDACTED] which hasn't officially been launched yet. My name is an alias and there'll be no return address because, frankly, I do not trust you yet.

My suggestions - which you should prioritize are.

1. STOP coal seam gas well fracturing.

Inevitably the cocktail of chemicals used will contaminate ground water for human, stock and agricultural use.

2. Abandon your knee-jerk mandatory sentencing proposal for so-called firearms crime.

There are people who view Howard's gun grab as treason...

and you do not want to be labelled as the same, do you? These people have held onto semi-automatic long arms for reasons of self-defence; they are collectors or they simply don't trust the government.

I know the U.N. wants everyone disarmed and so at the mercy of bad governments and invading forces, e.g. Indonesia, China, India (they are our immediate threats).

3. as far as you can, reverse foreign ownership of our land and minerals, infrastructure etc.

4. Discourage immigration to Queensland.

5. Stop free heroine, needles, methadone for drug users.

6. Release people in gaol for non-payment of fines and marijuana use.

7. Execute murderers and serial rapists.

8. Look into the Brigelan Corporation and its use to take away land ownership by private citizens. Surely you know about this? Peter Beattie is responsible.

attend to these matters.

s.73 Personal Information

Released under RTI - DRC

15 May 2012

The Premier  
Hon Campbell Newman MP  
PO Box 15185  
CITY EAST QLD 4002

Dear Premier,

Re: Need for Reforms to ensure Integrity of Science for assessing Coal Seam Gas (and Mining) Impacts

[Redacted] is lodging this Submission on the basis that it is essential to develop and implement a process to ensure the integrity of science used for assessing and managing negative impacts from CSG and Mining projects.

We are providing evidence that science used for East End Mine's 1996 Gladstone Expansion Impact Assessment Study grossly understated mine dewatering impacts (to conform with a political/commercial agreement for the mine's trebling of production / lease renewals to be approved on unchanged environmental approvals) and that subsequent technical reports by Mine Consultants, by Queensland Regulators, and by an "Independent" expert hired by the Environmental Protection Agency ALL understated dewatering impacts. The "Official" findings were accepted by an Australian training facility (that we expected would be not be subject to outside influence) who were prepared to promote the official position without due regard to dissenting evidence and findings from multiple experts.

- In light of our evidence (briefly detailed later) we respectfully request that our Submission be considered in full by your Office, given that the Regulating Agencies and the Coordinator General's Office remain bound by a 1977 "minimum compliance strategy" for the (Special Agreement Act) East End mine that was reinforced by a Cabinet agreement in 1995.

Farmers / other stakeholders are reliant on (and should be able to TRUST) Government processes will ensure full and frank evaluation of negative impacts from projects. There is evidence of widespread mistrust in processes for developing and operating CSG / Mining projects. In our experience this lack of trust is completely justifiable.

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*For Attention of the Premier*

Released



*For Attention of the Premier*

- We therefore strongly advocate that funding be made available to potentially affected landholder groups to select and hire their OWN experts whom they can TRUST, and for potentially affected landholder delegates (local knowledge) and their experts to be included and empowered (not outweighed or rendered powerless in the structure) in a collaborative panel of experts charged with fully and frankly assessing mining/CSG impacts. (Harding (1998) states: "Inclusion of local knowledge into scientific inquiry significantly increases the accuracy of assessing and interpreting local conditions thereby providing a more solid information baseline.")
- Subsequent to scientific assessment by the panel, potentially affected landholder groups and their experts should be included and empowered in decision-making concerning location of projects and for assessing / managing negative socio-environmental impacts.
- This submission advocates that in "public interest" Strategic Cropping Land and connected aquifers should be listed in a National Registry so as to be preserved for food production and welfare of future generations, with exploration permits, mining leases and / or all forms of mining excluded from proximity of such valuable, finite assets.

**Note:** Potentially affected landholders themselves MUST participate at the grass roots level and beyond - NOT representatives of farming organisations purportedly acting on behalf of landholders. This is the ONLY way to prevent unacceptable compromises being made on behalf of potentially affected landholders/stakeholders to their detriment.

As a mechanism to ensure 'best available science', we suggest that necessary parameters of the Terms of Reference and final analysis needs to be conducted in a hot tubbed format presided over by a technical auditor who is the most skilled and respected among his peers. Under hot tubbing unsustainable opinions (as opposed to dissenting views) are conceded in the interests of progressing study findings.

- We request that "environmental value" status be accorded to groundwater levels as a mechanism to accord value to and properly protect groundwater resources and that Terms of Reference investigate the degree and extent that perennial stream flows are sustained by groundwater.

In listing our evidence we aim to illustrate that processes employed by the Queensland Government worked against the interests of adversely affected landholders/others and that assessment of impacts by an accountably structured panel independent of IAS/EIS processes is essential to equitable planning processes. It is ALSO essential to empower landholders' experts and delegates in decision-making to ensure the "best available science". Our experience is that despite Government's continual reassurances of their impartiality - the "official" science used for assessing impacts from East End mine was ALWAYS intended to minimise recognition of dewatering impacts. A structure that disempowered landholders' experts and delegates in "Consultation Processes" facilitated this outcome.

**Evidence**

	Page No
Index	2
Preliminary	3
Materially False and Misleading 1995 Assessment of mine dewatering impacts used for East End Mine's 1995/96 Gladstone Expansion IAS and to fix the basis for the mine's Environmental Authority	4

February 1997: Use of standard groundwater modelling (Darcian flow assumptions) for assessing mine dewatering impacts on a karst limestone aquifer (non-Darcian flow) by East End mine consultant	6
July 1997 Assessment of East End mine dewatering impacts by Consultant (selected by EEMAG) for the East End Mine Community Liaison Group	6
December 1997: DNR's Draft Position Paper for East End Mine and Environs and Report by Consultant for EEMAG that dissented with DNR (1997/98)	7
September 1999: "Groundwater flow modelling – a summary" second Standard Groundwater model by East End mine Consultant	8
May 2001: "Independent" Assessment of mine dewatering impacts under Administration of Environmental Protection Agency	9
2002: EEMAG Submission of a Case Study to Australian Centre for Groundwater Studies	11
October 2003: Mt Larcom Community Restoration Project Report (Consultant Team Leader Prof Brian Roberts) Assessment of mine impacts	12
May 2006: DNR&M "Review of groundwater issues East End Mine"	13
2006: Why Regulators use ONLY Departmental and East End Mine Technical Findings for decision-making on East End Mine impacts	14
2007-2008: DNR&W "Consultations" and DNR&W's 2008, 2010 Review	15
2010 Map of Water Monitoring Area showing area of water loss identified by Water Monitoring data	19
Empirical Evidence from 2010 Recharge shows official findings not borne out by how the aquifer behaves	20
Mt Larcom Community Restoration Project Report (2003) - expert findings on bureaucratic capture by mining companies and on political agreements being allowed to override environmental considerations	20
The enormous bargaining power of mining companies	21

### **Preliminary**

On 14 August 1995 Prof Col Dudgeon presented his Draft Interim Report findings that after 15 years of mine dewatering, negligible dewatering impacts had migrated off-lease at a meeting with a small number of landholders from farming districts of East End, Hut Creek, Bracewell and Cedar Vale (upstream of East End limestone mine). The farmers shared grave concerns that water loss was much more pronounced than in droughts that occurred before mine dewatering commenced in 1979. Many of the landholders were third generation farmers.

- Dr Dudgeon's Report was prepared after a landholder's May 1995 request for a public briefing on the water monitoring results. This request triggered revelations that NO report had been prepared for 15 years. Mine dewatering commenced in May 1979 and water monitoring data had been collected quarterly since 1977. (Contrary to Dr Dudgeon's statement on P.4 of his report that the responsibility for reporting rested with DPI Water Resources – the responsibility under Special Condition 9 attached to the original 1976 leases to prepare and distribute reports, lay specifically with the company.)(Electronic copy of Dudgeon August 1995 supplied on CD)

Following announcement of QCL's \$220 M Gladstone Expansion Project <sup>s.73</sup> Organisation was formed at a public meeting on 1 September 1995. The dispute over Government and mining company technical assessments understating mine impacts – i.e. not being consistent with what landholders are seeing on the ground or with findings by multiple [redacted] experts – has been ongoing since that time.

**Materially false and misleading 1995 assessment of limestone mine dewatering impacts for East End Mine's 1995/96 Gladstone Expansion Project Impact Assessment Study;**

- Professor Col Dudgeon (who assisted with the construction and management of the East End mine's quarterly water monitoring program for 18 years since it commenced in 1977) authored the August 1995 Draft Interim assessment of the mine's dewatering impacts under direction of the Director of the Water Research Laboratory, University of New South Wales. The Report "Groundwater Monitoring around Bracewell-East End Mining Leases" found "a steep local drawdown cone limited to a distance of the order of half a kilometre from the pit" - i.e. negligible dewatering impacts had migrated off-lease. Dr Dudgeon's August 1995 Report was incorporated as a support document in QCL's \$220 M 1995/96 IAS Gladstone Expansion Project. (Electronic copy of Dr Dudgeon August 1995 supplied)
- FOI shows that unbeknown to landholders, on 14 June 1995 Queensland Cement Ltd (now Cement Australia) requested the Queensland Coordinator General approve tripling of the East End mine's production on unchanged environmental approvals, Quote from FOI document: "Subject, QCL Gladstone Expansion: Critical Issues, Item 5. Obtaining some form of guarantee on mining lease renewals so as to assure QCL's shareholder that there are adequate, secure, approved raw material reserves. Item 7. "Guaranteeing the status quo remains with regard to environmental licenses on current operations" - i.e. request for environmental approvals for the mine's expansion/lease renewals to be based on NO off-lease dewatering impacts. (Electronic copy of FOI supplied) (FOI shows the Government accommodated this request and still today the mine's environmental approvals remain fixed on the 1995/96 IAS Hydrology Report)
- An auxiliary Technical Report No 95/11, October 1995, was produced by Dr Dudgeon for the mine's 1995/96 Gladstone Expansion Impact Assessment Study (IAS) that reinforced his August findings. This October Report conceptualised inappropriate Darcian flow methodology (i.e. likening groundwater flow to the limestone mine to a bath tub with the mined limestone deposit set in a bed of fine sand on each side of and under the tub. (The sand represented volcanic rocks beside the mine and the dense, deep limestone with the same, low permeability as volcanic rocks under the mine.) This is despite Dudgeon's recognition of karst development on page 43 of the IAS quote, "Rainwater enters the limestone through scattered recharge areas where poorly developed sink holes and solution channels are traversed by surface drainage channels. More widespread, less obvious recharge must also occur by infiltration through the soil mantle. However, records of water table levels in boreholes indicate that the former process is the more important in the East End area." - i.e. a karst aquifer with flow through underground solution channels which is non-Darcian flow. (Dudgeon's August 1995 Report includes several "Non-Darcy flow" Reports in the References)
- (The 40 odd deeper bores drilled mostly in limestone in 1996 for the first Dr Frans Kalf model debunked the stated expectations of all involved hydrologists that deeper limestone would have low permeability. The extensive 1996 bore drilling program at East End proved this was not the case and in many instances deeper bores produced more water than shallower supplies.)
- QCL's October 1995 Draft IAS, Hydrology on page 47, 7.1.3, quote: "Expansion Proposals Relevant to Water Resources Assessment. "The only aspects of the proposal to expand cement works production capacity which would affect water supplies in the Mt Larcom area are the increased rate of mining and the change in method of transporting limestone between the East End Mine and Fishermans Landing." This claim is quite untrue as in a karst aquifer



since the very next blast could intercept a major conduit /solution channel that dewateres the aquifer to that level.

- Dr Dudgeon over emphasised drought by designating Bracewell (upstream of East End) as a “control area” that was not affected by mine dewatering and attributed its 8 metre water loss to drought that he then superimposed on and subtracted from East End aquifer losses. This allowed him to say that the steep drawdown cone around the mine rapidly attenuated and that mine impacts extended only approx 500 metres from the pit boundaries – i.e. negligible off-lease impacts.
- The findings were viewed with scepticism and strongly disputed by affected landholders as NOT being consistent with what was occurring in their bores, wells and creeks. BUT the fast-tracked IAS process permitted NO public objections against the mine’s trebling of production – similar to “significant project” status.
  - On 21 September 1995 Queensland DPI Water Resources (now DERM) as Regulators, approved Dr Dudgeon’s August 1995 Draft Interim findings for the mine’s 1995/96 Gladstone Expansion IAS Quote: (included in the IAS in Appendix D): “..DPI considers these assessments are reasonable given the complex hydrology and data available at this time”.
  - DPI Water Resources did not comment on Dr Peter James’ brief October 1995 review of Dr Dudgeon’s 1995 findings, also published in the IAS, (Appendix E) that contained Dr James’ dissenting views. Dr James found total East End aquifer water level losses of 13 metres but accepted Dudgeon’s 8 m drought thesis in good faith without independent verification. James commented that monitoring strongly indicated the limestone encapsulating Borehole 03 [then approx 1.5 km from the mine] is hydraulically connected to the mine and that the mined aquifer is recharged, at least partly by surface water in Machine Creek. He queried whether mine pumping had migrated to lots 59 and 71 - approximately 5.5 kilometres from the East End working lease - and expressed concerns of mine related stresses on Machine Creek.
  - DPI Water Resources’ 1995 endorsement of the Dudgeon Report for the IAS was not consistent with the contents of their **Ministerial Memo** dated 20 December 1988 by then Irrigation & Water Supply Commission.(obtained under FOI) (The DPI Water Resources officer who provided the Ministerial advice was still employed in the Rockhampton office in 1995), quote
    - “Data on hand indicates that water levels may have fallen by up to 2.5 metres at distances of **2 km from the mine** due to mine dewatering...” i.e. well outside East End working lease – almost 7 years previous to Dudgeon August 1995 Hydrology Report (electronic copy supplied)
  - DNR’s December 1997 Draft Position Paper used fully recharged pre-mining aquifer level comparisons to confirm full aquifer recharge at Bracewell in March 1991 and to rule that under these peak recharge conditions, mine dewatering created a recharge shortfall over approx 20 square kilometres of the East End aquifer in 1991 - 4 years PRIOR TO Dr Dudgeon’s 1995 Hydrology Reports – thus discrediting Dudgeon’s findings. (Electronic copy of DNR Fig 9 supplied)
  - Letter from Dr P James to Hon Liz Cunningham 2 Feb. 1998, “Thus, the Feb-Mar 1982 groundwater contours [hand drawn by Irrigation & Water Supply Commission 1977-1985] might have been expected to reflect this good season, i.e. no drought effects. ...It needs little more than a cursory check of the contour maps to recognise that serious groundwater depletion was taking place in the East End aquifer and extending to the north west of the mine by at least 3 km” “The question must therefore be asked as to why no official recognition was given to this. (in 1982)”
  - FOI dated 22 October 2001 shows that EPA in 2001 honoured QCL’s 14 June 1995 request to the Co-Ordinator General for unchanged environmental approvals and deemed the 1996 IAS Hydrology findings as “still valid” on which to issue the



mine's 2002 Environmental Management Overview Strategy and Environmental Authority for lease renewal. Despite the 1996 IAS Hydrology Report being discredited and superseded by various studies including James (July 1997) approx 60 sq km; DNR (1997) - 20 sq km off-lease depleted zone by 1991 and 22 sq kms in 1997/98; Kalf (Feb 2000 Map) 33 sq kms mine pit zone of influence. (Electronic copy of FOI supplied)

**February 1997: Use of standard groundwater modelling (Darcian flow assumptions) to assess mine impacts on the karst limestone (non-Darcian) aquifer system by East End mine Consultant**

Due to intense public controversy about the IAS Hydrology, in 1996 East End mine and Officers of Department of Natural Resources (now DERM) decided that the mine should develop a groundwater model. The decision to proceed was made despite knowing that the trend line data generated by the water monitoring program lacked the specific inputs required for modelling. Mine pit discharges since 1979 were not disclosed. East End mine drilled some 40 odd new bores to obtain additional data and hired Dr Frans Kalf to construct a groundwater Model.

Dr Kalf produced his Draft Findings in February 1997 – a mine impacted zone affecting approx 7.5 square kilometres. Dr Kalf's findings were greeted with scepticism and much frustration by EEMAG members the findings did not reflect what was occurring in their bores and wells, or in creeks that had been perennial pre-mining.

**July 1997: Assessment of East End mine dewatering impacts by East End Mine Community Liaison Group Consultant appointed at EEMAG's insistence**

After ongoing representations to Member for Gladstone Liz Cunningham (who held the balance of power) and to Mines Minister Gilmore, it was agreed that an "Independent" expert would be hired to review the model, under the auspices of the East End Mine Community Liaison Group. Dr Peter James was appointed at EEMAG insistence on the sole proviso that EEMAG would accept his findings.

- However Dr James found the model so unrepresentative of the circumstances that he abandoned his review of the model. In July 1997 he produced a whistleblower report with findings of mine impacts on more than 60 square kilometres of East End and Bracewell (upstream of East End) causing loss of perennial stream flows in several creeks. He withdrew his previous acceptance of Dr Dudgeon's 1995 drought thesis that he accepted in good faith while compiling his October 1995 Review for the IAS when he was given only restricted data access. Dr James reported from an inspection of the mine pit: "...that karst activity, in the form of open channels and pipes, can be observed to quite deep levels within the open pit; within 5-10m of the base of the pit and well above the pristine water table."
- DNR hydrologists / regulators and the mine would not accept Dr James' findings.
- The Federally Funded Mt Larcom CRP Report (2003) Groundwater Resources Segment by Dingle Smith (ANU) evaluated under "Regional falls in groundwater levels" Page 32, Quote:

"The report by Dr James (1997) analyses the borehole monitoring records to compare changes in groundwater level. This map is reproduced here as **Figure 1**. The comparisons are between the map of 1979 groundwater levels (accepted by all parties and included in earlier reports) and the observations from monitored boreholes for the period 1995-96. (See Figure 3.)

Such comparisons would be widely regarded by hydrogeologists as the accepted way to interpret patterns of change due to the mine de-watering. As far as I can see, this approach of a map of change in groundwater levels over the whole region has not been attempted in the reports by Golder and Associates although similar methods are reported DNR (1998)." End of Quote

**Note:** (The Mt Larcom CRP Report (2003) Groundwater Resources Segment, by Dingle Smith begins on Page 28 - electronic copy on CD included)

**December 1997: DNR's Draft Position Paper on East End Mine and Environs and report by Consultant for EEMAG that dissented with DNR 1997/98**

DNR conducted a Technical Meeting in Rockhampton in December 1997 at which they released their Draft Position Paper on East End Mine and Environs. DNR's Figure 9 ruled there was an approx 20 sq km mine impacted area at East End by 1991, and extrapolated those impacts for Figure 10 to a 22 sq km mine impacted area in their Report, finalised in February 1998. DNR found no evidence that mine impacts had migrated upstream to Bracewell and discounted the possibility that Bracewell could be affected by mine dewatering. However Water Monitoring data showed Bracewell and portion of Hut Creek was suffering unexplained water loss.

- EEMAG and Dr James dissented with DNR's findings, claiming DNR had understated mine impacts. EEMAG immediately hired highly regarded modelling consultant Prof Ray Volker from the University of Queensland and signed a contract with the University for the study to be completed prior to DNR's Final Position Paper due in February 1998. This was so DNR would have to take Prof Volker's view's into account for DNR's Final Position Paper.

- But, prior to Professor Volker completing his contract, a Senior DNR Officer persuaded Dr Volker to delay his Report without informing EEMAG, the client, to the detriment of our case. (The action by DNR is confirmed in "Industry/Community Relationships in Critical Industrial Developments" Hoppe (2005) on Page 9.51 by the author's interview with a government official.) This delay negotiated by DNR enabled the Regulators to make a final ruling on findings in their 1997/98 Position Paper and to AVOID having to take the Professor's August 1998 Report - or his support for Dr Peter James 1997 dissenting findings (rejected by DNR/the mine) into account. (Doctoral Thesis, Industry/Community Relationships in Critical Industrial Developments Website: <http://www4.gu.edu.au:8080/adt-root/uploads/approved/adt-QGU20060704.120839/public/03Main.pdf> - This website begins at Chapter 6, Refer Page 9.51. (The whole of the Doctoral Thesis is available at Website: <http://www4.gu.edu.au:8080/adt-root/public/adt-QGU20060704> )

- Professor Volker verbally indicated that the University was vulnerable to leverage due to the University's collaborate arrangement and dependence on DNR's funding and research opportunities.

- The 'Interim Conclusion' from Professor Ray Volker's study of Aug. 1998, Quote:

"On the basis of the available evidence, it cannot be concluded that there is no effect of mine dewatering on the Bracewell aquifer, for the following reasons.

1. Some connectivity between the aquifers in the vicinity of Weir 2 appears likely as indicated by the permeable material exposed by the excavation in early 1998.
2. In such a complicated aquifer system there is a distinct possibility of channels of relatively more permeable material linking the aquifers and acting as confined flow conduits."

"The evidence on amounts and timing of drawdown in the Bracewell aquifer, in spite of the prolonged drought, are consistent with the possibility of mine dewatering effects reaching the Bracewell'. (Refer Pages 31,32 Mt Larcom Community Restoration Project Report - electronic copy on CD)



**September 1999: 'Groundwater flow modelling – a summary' the second standard groundwater model for East End mine.**

In 1999 Dr Kalf abandoned an attempt to recalibrate his first model that could not evolve and began work on an entirely new model. His Report "Groundwater flow modelling – a summary" was released in September 1999, and in February 2000 Dr Kalf provided a map of the "Mine Pit Zone of influence" showing an area of 33 sq km affected by dewatering. (electronic copy of 2000 Map of Mine Pit Zone of Influence supplied)

- Dr Kalf's new September 1999 model found Bracewell water loss identified by water monitoring data was not caused by mine dewatering. The three calibration wells he chose for Bracewell were ALL unrepresentative of the limestone body that he was modelling. Two of the calibration sites were shallow alluvium wells (sunk in particles of silt, clay, mud and sand deposited by the creek) that fully recharged at intervals in isolation of the chronically depleted limestone body. The third site lay in the Jacob's Creek limestone that was more remote from the mine than Bracewell and therefore less affected.
- Kalf's Sept 1999 model was also abandoned due to failed forward projections and inability to evolve to the next generation.

Prof Volker in "Key Issues: Prepared for Technical Forum on Groundwater Aspects of East End Mine Dewatering" (2000) commented on Page 2, re: Kalf Modelling; Quote:

Volker Page 2 re the Kalf modelling: "...it is not clear there has been a meaningful attempt to ensure there are no anomalies between results generated by the model and information such as is available from local residents" - i.e. no use of local knowledge for ground truthing. (Refer Page 44, Mt Larcom Community Restoration Project Report electronic copy supplied)

**As an expert opinion on the benefits of collaborative assessments to avoid deep seated conflicts and mistrust about the accuracy of technical assessments, I refer to Prof Volker in "Key Issues: Prepared for Technical Forum on Groundwater Aspects of East End Mine Dewatering" on Page 1 Introduction Quote:**

"I consider the key technical issues are related to two major topics. These are:

- The amount of drought impact on water levels in the aquifers and on flow in streams versus the impact of East End mine dewatering on the aquifers and streams, and
- The nature of the connection between Bracewell and East End limestone in relation to groundwater flow" and

"Attempts to obtain a resolution to these issues will, I believe, require a fundamental change in approach by the parties concerned, mainly by Queensland Cement Limited (QCL) and EEMAG. **If there is to be a genuine attempt at reaching a common understanding of the groundwater depletion effects and their causes, there will need to be a commitment to working together collaboratively and cooperatively.** This includes work on hydrogeological and hydrological aspects incorporated in the groundwater model developed for QCL as a groundwater management tool." (My bold) (Hard copy of Prof Volker's Report supplied)

- EEMAG learned in 2002 that it is recognised in Australia and internationally that standard groundwater modelling assumptions and techniques (based on Darcian intergranular flow) (used by Dr Kalf and approved by DNR) are inappropriate for assessing mine dewatering impacts in a karst limestone aquifer system with solution channels / conduit flows (non-Darcian flow) e.g. for the East End mine.

## May 2001: "Independent" Assessment of mine dewatering impacts under Queensland Environmental Protection Agency (EPA) jurisdiction

In August 2000 the Minister for Environment and Natural Resources advised that attempts to conduct the proposed Open Technical Forum (a technical appraisal with all experts participating) had been abandoned and Government would commission an independent assessment of the mine's hydrological impacts, with EEMAG invited to comment on the brief. The May 2001 "Independent" Technical Assessment by John Waterhouse of Golder Associates for EPA endorsed findings by DNR's 1997/98 Position Paper (22 sq km mine depletion zone) and findings from East End mine Consultant's Dr Kalf's "Groundwater flow modelling – a summary" (September 1999) and (2000) Map of the (33 sq km Mine Pit Zone of Influence)

In EEMAG's view J Waterhouse's Draft Report of May 2001 provided only limited acknowledgement of and gave very little weight to evidence/ findings that dissented with Government/mining company findings.

### Some key issues;

- Dr James advised EEMAG that J Waterhouse had not read and did not discuss Dr James' Hydrology work / Reports with him when J Waterhouse visited as a required part of his brief (Prof Volker was unavailable for interview as he was working in Assam.)
- J Waterhouse's produced his study from EPA's office in Rockhampton. His first Draft Report, March 2001, had a circulation of only two copies (one for J Waterhouse and one for EPA). The footer in the Report stated "*This draft has been prepared solely for the purposes of discussion with EPA and has not been subjected to Golder Associates normal review process.*" EEMAG interpreted from this process that EPA had a right of veto. (Hard copy of front cover and Page 2 supplied) (EEMAG learned of the first Draft Report unexpectedly. Access to the report was facilitated through Hon Liz Cunningham who was to chair the proposed public presentation.)
- During an informal meeting between EPA, Hon Liz Cunningham, J Waterhouse and EEMAG members on 18 May, EEMAG requested portions of J Waterhouse's May 2001 draft report be re-written. J Waterhouse advised he would produce an Addendum to his Draft Report
- In his May 2001 Addendum Report, J Waterhouse quoted mine-pit discharges of 1.7 megalitres per day from a severely depleted aquifer as a reasonable estimate of discharges. (The mine's pit dewatering license permitted a maximum discharge of 6 megalitres per day from 1979 to 2001.) We did not regard use of this selective quote after more than 21 years continuous discharges under variable seasons (eg above average rainfall years 1988, 1989, 1990 leading up to and including 1991 floods) was appropriate when determining a conclusive finding, particularly when historical mine pit discharges (which began in 1979) were not available.
- (Note: Water Monitoring data for December 2003 to March 2004 for the mine's discharges to Weir 6 shows 1,000 megalitres was discharged in 3 months – after a major February 2003 rainfall event) (Hard copy of Groundwork transmittal Form and graph of Estimated Stream flow at Weir 6 supplied)

The Federally funded Mt Larcom Community Restoration Project Report (2003) referenced most of the available Hydrology reports covering the dispute. Two (2) of a number of comments by leading Australian limestone hydrologist Dingle Smith (ANU) in the Groundwater Resources Segment regarding J Waterhouse's work, state on Page 27, Introduction: Quote



“Attention is drawn to the shortcomings in the Golder & Associates Reports prepared for the Environmental Protection Agency of the Queensland Government and especially to the lack of recognition that limestone aquifers have both slow and fast flow components. The former is amenable to the standard methods used for computer modelling of groundwater and the latter is not.” and Pages 38 and 39 Quote:.

“Peter Brady (of EEMAG) undertook a survey of local irrigators around year 2000.

Brady reported the number of irrigators using groundwater bores in 1980, close to the time that pumping from the mine commenced, as 20½ (the ‘½’s indicate minor use). The corresponding number for 2002, from the survey, was 6½. The survey also provided estimates of the decreases in the area irrigated and in the volumes pumped for irrigation.

Both the estimates for area irrigated and volumes pumped for irrigation in the year 2000 were approximately one-third of pre-mine figures.

Brady also points out errors in the irrigation rate used in earlier water budgeting studies by Kalf.

This matter was addressed by Golder Associates in their addendum of May 2001 which briefly reviews Brady’s initial data and comments:

‘it is certainly accepted that there has been a substantial reduction [in irrigation use] over the last 20 years’ [writer’s underlining] (p.9, addendum May 2001).

The discussion of Brady’s data [by John Waterhouse] does not mention that the irrigation volumes and area in 2000 was a third of that in 1980. It is also clear that no attempt has been made to incorporate the revised, and much reduced irrigation, information into the groundwater modelling. Brady’s data were again updated in December 2001 in the EEMAG publication *Hydrology, Hydrogeology and Trilogy* (2001) a copy of which was made available to Golder Associates.

It is disappointing to see the response of Golder Associates to this survey undertaken by Brady. Golder Associates (p. 18, April, 2002) ignores the Brady’s survey of irrigation use and again comments that:

‘...the lack of such information [irrigation use] has limited the effectiveness of model calibration in several areas and makes more difficult the task of separating out mine impacts from those attributable to drought’

Having agreed that ‘there is a substantial reduction in irrigation use’ in the May 2001 Addendum report this is discounted in the report of April 2002 which goes on to discuss the importance of plant transpiration from vegetation along Scrub Creek. Presumably this information had previously been incorporated into water balance studies and the model? If not, it is further evidence of the very shoddy approach to providing an acceptable water balance model. It appears that having received information regarding irrigation use that this has been casually discarded.” End of quote

- EEMAG interprets that evidence (some obtained since 2001) shows the Senior EPA Officer who administered the 2001 “Independent” Technical Assessment supervised a process that acted to defend Government expert / Company Consultant findings (in keeping with the “minimum compliance” agreement for East End mine) whilst pretending to EEMAG that the process was bona fide.
- (The 1977 Government/mine agreement for “minimum compliance” is disclosed in Doctoral Thesis “Industry/Community Relationships in Critical Industrial Developments” (Hoppe 2005/6) on Page 9.19. Page 9.23 reports “That means that industry and government

stakeholders which share the responsibility for the planning approval and operational processes of the EEM development have little choice but to live with the legacy of earlier decision-making. It is necessary for these stakeholders, therefore, to defend earlier EEM specific decision-making because it controls socio-environmental community demands and equally important minimises legal exposure.” Doctoral Thesis, Industry/Community Relationships in Critical Industrial Developments Website:

<http://www4.gu.edu.au:8080/adt-root/uploads/approved/adt-OGU20060704.120839/public/03Main.pdf> begins at Chapter 6, Refer Pages 9.19 and 9.23).

- EEMAG wrote to EPA on 31 May 2001, due to our concerns on J Waterhouse’s use of 1.7 Megalitres per Day discharges as a reasonable estimate and sought access to QCL’s mine-pit discharge data that began in 1979. On 5 June 2001 EPA advised that QCL had no objection to making the mine pit discharge records available. (This data still have only been partly disclosed.) EPA’s letter stated, quote “In the addendum to his report, John Waterhouse has made it clear that he does not consider that the inclusion of this material in his report is necessary to the findings he has proposed. Such work would also be outside the terms of the brief given to the consultant.

Dingle Smith (2003) Mt Larcom CRP Report, under Water Use and Water Budgeting stated on Page 38, Quote:

**“The lack of a useable run of mine pump data indicates a major flaw in the administration of the monitoring program and also renders any attempt to obtain a water balance presented in the various reports by Golder Associates to be so incomplete as to be of no practical value.**

**Even to a non-technical reader of the voluminous reports on the mine it is apparent that the amount pumped out of the quarry is the single most significant feature to be addressed in discussing the impact of the mine of local surface and groundwater.”**

- After all the cost and effort invested in EPA’s “Independent” assessment, an EPA Memorandum of 22 October 2001 (obtained under FOI) shows EPA did NOT use John Waterhouse’s May 2001 “Independent” findings (supporting Kalf (2000) - 33 sq km zone of mine induced depletion) as the basis for the mine’s 2002 EMOS and Environmental Authority for lease renewal in 2003. Instead EPA used the false, misleading and out of date 1996 IAS findings to honour the request for unchanged environmental approvals sought by the cement company for the project in June 1995. (Electronic copy FOI 22.10.2001 supplied)

## **2002: EEMAG’s submitted a case study to Australian Centre for Groundwater Studies**

Evidence the bureaucratic / mining consultant influences and loyalties are widespread, e.g.

- At the initiative of the Australian Centre for Groundwater Studies, EEMAG’s lay-person authored “Weir 2 Case Study” was submitted to the Centre for Groundwater Studies (CGS) in early 2002 on a no obligation basis for appraisal of its suitability for presentation at one of their training seminars. EEMAG was encouraged by a senior officer to believe the Weir 2 Case Study might be used in a CGS short course presentation. (Copy of email and “Weir 2 Case Study available)
- CGS consulted EPA’s “Independent” Consultant John Waterhouse, with EEMAG’s consent. Ultimately EEMAG’s Weir 2 was restructured by John Waterhouse and CGS into a composite report renamed “Golder East End Case study: impact of mine dewatering in a fractured limestone aquifer, Mt Larcom, Queensland”. This composite report shifted its focus from Weir 2 to an East End Mine overview that was a ringing endorsement of the official position. There was little mention of the various dissenting



technical or practical views. The mine's quarterly Water Monitoring Programme that began in 1977 was not mentioned in any capacity. The hydrogeology was inappropriately described as a "fractured limestone aquifer"

- EEMAG members were quite shocked by a statement in the CGS "Golder East End Case Study" quote: **"We are also grateful to Queensland EPA who provided permission to use information from the Golder review, and who have assisted with development of this case study."** (My bold) In EEMAG's view this outcome would be broadly interpreted as a "peer review" of EPA's "Independent" Golder Review. (Supporting documents available)
- The "East End Case Study" was scheduled for presentation at a "Getting to Know Groundwater" course in late November in Brisbane with a senior DNRM officer (co-author of DNR's February 1998 Position Paper) helping coordinate details and arrange presenters. After further communications between EEMAG and CGS where EEMAG futilely attempted to ensure a balanced presentation, (including comments to CSG by Dingle Smith) and the "East End Case Study" was withdrawn at EEMAG's insistence.

**October 2003: Federally funded Mt Larcom Community Restoration Project (CRP) Report for EEMAG Inc endorsed James (EEM CLG 1997) and Volker (EEMAG 1998) findings**  
(Electronic copy of Mt Larcom Community Restoration Project Report supplied)

- The \$100 K, Mt Larcom CRP Report (October 2003) (Consultant Team leader Prof Brian Roberts) Executive Summary, states in Item 10 "Groundwater depletion and its relation to pump out procedures at the East End limestone mine was a major sphere of project investigation. The leading Australian limestone expert, who developed the groundwater segment of the study, concludes that modelling of the local karst aquifer is not an appropriate methodology. In summary he attributes most of the water depletion to the operation of the QCL mine rather than to drought, gravitational drainage or landholder consumption. The mine pump-out figures were considered to be so poorly recorded as to be of little practical use, while the meter attached to the mine pit sump was not adequately maintained so as to provide a meaningful back-up alternative. An associated report analyses creek flow upstream of the mine in comparison with rainfall/runoff over time and identifies declining rainfall trends, but finds additionally that creek flow progressively and disproportionately declined due to mining and identifies a date when these effects markedly increased."

The Groundwater Resources segment of Mt Larcom CRP Report by David Ingle Smith (Senior Fellow, Centre of Resource and Environmental Studies, Australian National University) critiqued work by Dr Frans Kalf (modelling) for East End mine, John Waterhouse's (Golder Associates) work for EPA, the DNR Position Paper, Dr James work for East End Mine Community Liaison Group and Prof Volker's work for EEMAG.

On Page 29, under Implications for groundwater, Smith explained the importance of recognising karst development for assessing mine impacts, Quote:

"The development of karstic features indicates that the form and patterns of sub-surface flow are complex. Some water flows rapidly, especially after heavy rain, along solutionally enlarged fissures that can be regarded as similar to flow in pipes. Other water moves very slowly essentially as intergranular flow. The latter style of groundwater movement is regarded as the normal type of groundwater flow in non-limestone aquifer, such as sandstones.

A simple example of conduit flow is that in limestone areas, and the Bracewell area is no exception, boreholes for water sunk a few metres part can result in very different yields, some of no value as a source of water while others can have high water yields." End of quote

Smith endorsed Dr James' 1997 findings that mine-caused depletion had migrated upstream of East End to Bracewell and Prof Volker's work. EEMAG respectfully requests the Groundwater Resources Segment of the Mt Larcom CRP Report be read as a supportive document to our submission. It has simply explained and authoritative evaluations of shortcomings in work by Dr Kalf (for East End mine) and John Waterhouse ("Independent" Consultant for EPA) etc.

**May 2006: DNR&M "Review of Groundwater issues, East End Mine" Final Report for Discussion (Supporting Documents available)**

In our view DNR&M's May 2006 Final Report for Discussion "Review of Groundwater Issues at East End" is framed to defend previous "official" findings. 1 Key Example - the 1995/96 Impact Assessment Study Hydrology Report (i.e. negligible off-lease dewatering impacts) on which East End mine's Environmental Approvals remain fixed and which is shown to be inaccurate at the beginning of our evidence.

- Refer DNR&M (2006) Page 5, quote: "The best knowledge at the time (1996)(by Dr Col Dudgeon of the University of New South Wales) suggested that the predominant influence of groundwater drawdown was within a distance of 0.5 to 1.0 km of the mine."

DNR&M (2006) used a confidential closely spaced airborne magnetic survey completed in 2005 for East End mine (that was not made available to our experts) to unjustifiably rule that an impermeable volcanoclastic barrier separated Bracewell limestone from East End and that the deposits "cannot therefore be hydraulically connected by limestone karstic development of any type".

- Water Monitoring data (including DNR 1998 contouring) reveals that there is NO partitioning of the depleted Bracewell aquifer from East End by the mafic dyke. Water monitoring data shows that bores on both sides of the mafic dyke in Fig 3.3.2 go up and down in unison.
- There is no factual basis to conclude that the mafic dyke prevents groundwater from flowing downstream from Bracewell to the mine-depleted East End aquifer. The mafic dyke shown in DNRM (2006) Fig 3.3.2 crosses Bracewell's \*Lake area (where there are caves and numerous sink holes and the lake's underground cave system is likely to be quite substantial), diagonally across Lots 11 and 12 (more sink-holes) and lots 13 and 19 where the marble mining lease is perforated by numerous sink-holes and karst outcrops with deep fissures. **Note:** Bracewell Lake is not a permanent "Lake". The Lake area is a relatively shallow depression with limited catchment that fills after substantial rainfall events, generally each decade or so. The lake holds an estimated 30 megalitres when it fills. This water steadily drains away through sinkholes into limestone cavities in the aquifer below.

(Comments by DNR&W May 2006 as to why the Open Technical Forum did not proceed and why the proposed artificial injection of mine pit water into a bore at Wallaby Lane did not go ahead that are not accurate are not rebutted here.)

Expert comment by Dingle Smith dated 25 Sept 2006 on DNR&M (May 2006): Extracts,

**Quote: "I find the draft report totally unsatisfactory especially as it does not reference, mention or address the extensive report, the *Mount Larcom Community Restoration Project (CRP)* published and distributed in October 2003... This clearly invalidates the final paragraph of the DNRM & W Draft Report that states '...the Department has acknowledged and reviewed all of the previous investigations that have been completed at, and adjacent to, the East End Mine by all parties in dispute.'"**

Smith cont; "In the areas in which I have expertise and experience I find the draft still fails to address many of the issues presented in detail in the CRP Report. This is especially regrettable



as CRP Study was funded specifically by the federal government and permitted EEMAG to obtain the services of a range of expert consultants. Many from Australian University research groups that have international experience and reputations. To ignore such a report in an official Queensland Government Review is completely unacceptable.”

“**Summary** In short, I share your disappointment in the draft report which adds little new to earlier arguments and fails to address any of the adverse views put forward by the consultants involved in producing the CRP Report. Over the years I have worked in conjunction with the water agencies in most States and Territories in Australia **but I find this report to be among the poorest I have encountered, not least of all because it refuses to acknowledge let alone comment upon the work undertaken by consultants working with EEMAG and whose findings are readily available in the CRP Report.**” (My bold)(Smith’s 25 Sept 2006 comments on DNR&M May 2006 available)

### **2006: Why Queensland Regulators use only Departmental and company science for decision-making for East End mine**

After years of expecting that Government hydrologists would properly listen to / include the views of EEMAG’s experts and landholders’ local knowledge in decision-making for technical assessments, the 2006 release of Doctoral Thesis “Industry/Community Relationships in Critical Industrial Developments” (Hoppe 2005) clarified why our hopes had proven futile. (A copy of the Doctoral Thesis was provided to EEMAG and Cement Australia simultaneously.) It is a comparative study between a Holcim mine in Switzerland (that used participatory collaborative planning) and the Holcim owned mine at East End in Queensland (that operates under a 1977 “minimum compliance” agreement), and includes comparative tables on the differences between the way the two projects operate.

Doctoral Thesis, Industry/Community Relationships in Critical Industrial Developments Website: <http://www4.gu.edu.au:8080/adt-root/uploads/approved/adt-OGU20060704.120839/public/03Main.pdf> begins at Chapter 6, Refer Pages 9.19 and 9.23).

Page 9.23 states that **integration of new and progressive socio-environmental government legislations into the EEM case is highly unlikely because of the earlier specific deep structure commitments which exclude many contingency options and include only those that are mutually agreed upon and are consistent with the earlier deep structure choices – i.e. contingent decisions by Regulators must be agreed to by the mining company.** (My bold)

Page 9.23 states: “Although reluctantly, industry and Government respondents recognise the legacy of earlier EEM specific decision-making does play an important role in relation to the EEM case. This has been confirmed by a government representative stating “Government agencies and industry actually defend their earlier decisions quite regularly, they should not have to but they do” (interview data 9/0 1999) Similarly, a public servant recognised that decision-makers in the EEM case “try to defend some of their old decisions, realising that earlier decisions were not as good as they should have been. (interview data, 4GA 1999)”

Page 8.21 documents that the openness by Kantonal (Swiss) government agencies to local knowledge and experiences is very different to the attitudes of Queensland government authorities involved in the East End mine development. Queensland’s response to local wisdom and experiences is short and clear. Quote: “If information is not collected, analysed and interpreted by the agency or by its approved external experts, such data cannot be recognized by the department as scientifically legitimate and can therefore no be considered in the final decision-making process.”

- Page 8.38 states: “The practice of sparse and slow data distribution while pursuing minimalist compliance is not new. Industrial organisations and government institutions frequently use this method as a means of controlling the situation (Roome, 1998; Wilson, 2000)”

### **2007 and 2008 Technical Consultations with DNR&W’s - Regulators 2008 and 2010 Reviews**

EEMAG made widespread representations disputing the accuracy of DNR&M’s 2006 Report (the officer resigned from the Department shortly after compiling the report) The Department undertook to revise and update their May 2006 findings. In 2007 Departmental hydrologists abandoned the DNR&M May 2006 review in favour of face to face technical discussions between DNR&W, EEMAG and their expert limestone hydrologists, Cement Australia East End mine manager and the mine’s Water Monitoring Consultant.

The dissenting views of EEMAG’s experts and local knowledge of our delegates was obviously being disregarded by DNR&W during technical discussions, which was very frustrating for our experts who had travelled great distances (from Brisbane, Canberra and Melbourne) to participate in good faith. This flagged that DNR&W’s “Consultations” were token only. DNR&W retained editorial control over inputs and reports despite EEMAG’s formal requests to a Senior Officer for empowerment of our experts and delegates in the consultation process. DNR&W did identify that dewatering impacts had continued to migrate to 2008 and affected approx 50 square kilometres of the East End aquifer (but that unexplained upstream water loss identified by water monitoring data was not caused by mine dewatering).

- The qualifications of EEMAG’s internationally recognised consultants are:
  - David Ingle (Dingle) Smith, Emeritus Faculty, Australian National University, formerly Senior Fellow, Centre of Resource and Environmental Studies ANU, an eminent limestone hydrologist and geomorphologist, who has extensive karst aquifer experience that includes dye tracing.
  - Associate Professor Brian Finlayson, (in 2007) Principal Fellow, Department of Resource Management and Geography, Graduate School of Land and Environment, The University of Melbourne, an eminent limestone hydrologist and geomorphologist, Even DNR&W has recognised that, within the consultative phase Brian Finlayson demonstrated knowledge, expertise and balance superior to that of any DNR&W participant.
  - Consulting Engineering Geologist /Geotechnical Engineer Dr Peter James who has had a long-term involvement and is intimately familiar with the Mt Larcom hydrogeology.

The above 3 experts jointly worded and signed a letter to the Minister for Natural Resources & Water dated 21 September 2007 raising concerns on DNR&W’s consultation and technical assessment processes, quoted in full below; (electronic copy supplied)

Dear Sir,

#### **East End Mine, Groundwater Issues**

Having just completed a two day meeting with representatives of the DNR&W, discussing the above, we write to you to express a deep concern for the outcome.



The meeting of 13/14 September was held allegedly to achieve a consensus on the groundwater issues. However, assurances that the DNR&W was to act as an unbiased arbiter in this matter were negated by a lack of consideration given to dissenting evidence. Serious scientific discussion was frequently brushed aside when well-reasoned arguments ran counter to the department's established view.

Based on more than a century of cumulative experience with geohydrology and karst aquifers, the undersigned have severe reservations about the department's conceptual plan and also its reliance on a groundwater contouring methodology that contains some basic interpretative flaws. Moreover, the department's adherence to analysis at a regional scale, based on Darcian principles, simply ignores conflicting evidence at a local scale.

Major environmental impacts on groundwater and surface streams have been apparent for a long time in the East End and Bracewell areas. The DNR&W unduly emphasizes the current drought as the only explanation for the impacts, at least for the latter area. This simplistic view again runs contrary to the weight of evidence.

Other investigative work done by the DNR&W up to this point has also been very limited in scope, considering the excellence of the monitoring program that has been established here. The bulk of the data obtained since 1977 have never been subject to rigorous analysis by the Department. Neither has the department attempted to incorporate into the conceptualization of aquifer behaviour much of the detailed knowledge and climatological data held by local landholders regarding, for instance, comparisons between the effects of the 1960s drought and that of the 1990s.

We understand that the content of the forthcoming departmental report lies entirely within the control of the DNR&W. We therefore express our concern that this report will not provide adequate balanced judgements nor logical conclusions and we wish to make it clear that our presence at the meeting in Mt Larcom on 13/14 September should not be taken as an endorsement of that report.

In summary, we would like to bring to your attention that, after more than a decade, the major environmental impacts still need to be resolved rationally and quantitatively and we would welcome your personal opinion in this respect.

Please find attached, for your information, brief notes on the qualifications and experience of the undersigned." End of quote.

- Despite the above letter, and further "consultations" at Mt Larcom on 5-7 March 2008 DNR&W's Nov 2008 Final Draft continued to treat the aquifer system as having simple Darcian flow. Detailed explanations of these dissenting views and other shortcomings in DNR&W's work have been repeatedly supplied to DNR&W officers in writing and verbally during / after technical "consultation" discussions, to no avail. DNR&W have admitted that other than for the East End aquifer their experts have had no experience of karst aquifers.

Comments by Brian Finlayson, extracts from Dingle Smith and Peter James on DNR&W's (now DERM's) November 2008 "Review of Groundwater in the Mt Larcom-Bracewell Area. Final Draft" are quoted below

COMMENTS BY BRIAN FINLAYSON DATED 28 DECEMBER 2008 ON DNR&W (2008) FINAL DRAFT (Electronic copy available) Quote;

"I have received a copy of the *Review of Groundwater in the Mt Larcom-Bracewell Area. Final Draft* by Bruce Pearce with an invitation to submit comments by January 16<sup>th</sup>, 2009. I will not be

submitting detailed comments on this report and I elaborate more on this below. However, the timelines involved, confined to the Christmas-New Year period, are unrealistic. I will be away, first on holidays in January, and then working overseas until the end of March so even if I chose to comment in detail I would not be able to do this until April 2009.

I have perused this report and I see little point in now attempting yet another commentary on it. Any changes since the last version are only cosmetic and the basis and fundamental problems of this whole approach remain unchanged. Any information that has been provided in other reports or in comments and discussion on previous versions of this report that seriously challenge the methodological approach have simply been ignored.

The geological sequences surrounding the East End Mine are complex both lithologically and structurally yet the approach taken in this report is to ignore all those complexities and treat this material as a single unconfined Darcian aquifer. A major component of the lithology here is limestone (it is, after all, a limestone mine!) and we are being asked to accept that this limestone, which has been here for upwards of 300 million years, has not in all that time developed any of the usual features of limestone aquifers.

Included in this report is a chapter by Drew and Goldscheider from their book *Methods in Karst Hydrogeology* in which they summarise the methods that should be used in the investigation of the hydrogeology of karst aquifers. These two scientists are international leaders in this field yet no notice has been taken of their work in the investigation of this aquifer. Why has this chapter been included here? It should also be noted in this context that Dave Drew's PhD thesis on limestone hydrogeology was supervised by Dingle Smith whose opinions on this matter have also been sought, and ignored.

I could go on to elaborate many quirky inconsistencies in the present report but I will limit myself to just one. For some unknown reason, the limit of drawdown by the mine pumping has been taken to be the 40 metre contour and a series of maps based on this unsubstantiated assumption are given in Map 19. Note the map for June 2007. Elsewhere in this report it is stated that the drawdown by the mine is controlled by structural alignments that trend SE-NW yet here, in the June 2007 map only, there is a narrow band of drawdown heading directly east. I could go on in this vein.

The danger with this report, and others like it that have been produced in the past, is that because the groundwater contours have been drawn and the discussion centred around that view of this aquifer, other commentators get drawn into also discussing these contours and the patterns they show as if they are real. Another far more realistic view of this aquifer system could be constructed by carrying out the kinds of investigations advocated by Drew and Goldscheider (and thousands of other karst hydrogeologists.)

This report does not tell you how this aquifer behaves." End of quote.

EXTRACTS FROM DAVID (DINGLE) SMITH'S COMMENTS DATED 11 JANUARY 2009  
ON DNR&W (2008)(electronic copy available) Quote P.1 Para 4

**"Groundwater in the Mt Larcom Bracewell Area**

Throughout my association with EEMAG all of the many documents I have written, many of which have been sent to your Department, have stressed that the groundwater hydrology of the region concerned should be placed within the context of a karst aquifer. For many years the government and Cement Australia dismissed the possibility that karst effects were even a possibility, more recently they have acknowledged that there may be karst influences..."

DI Smith, Quote P.2, para 4



"The other aspect on which I would like to comment relates to the groundwater monitoring program set up prior to the commencement of mining. There are two aspects of this that are particularly disturbing.

1. The fact, now acknowledged, that after more than twenty years it is considered that the methods used for water quality sampling were such that the data are valueless. This is discussed on p.76, where it is reported that the procedures used did not meet Australian Standards and the data are unsuitable for any form of detailed analysis. That this state of affairs was allowed to continue without comment from your Department for so long does not reflect well on any of those concerned; ie. the Dept of Natural Resources & Water, Cement Australia and its consultants..
2. It is acknowledged in this and earlier reports that water budgeting is critical to the assessment of possible impacts of the mine on the local groundwater. The key measurement in such a budget is the assessment of quality and quantity of the water that seeps into, and is pumped out of the mine. This should be apparent even to those with no detailed acquaintance with limestone groundwater. There are no long-term reliable records for this, and as far as I can see the recommendations still do not require such observations to be made. On several occasions I have tried to obtain these data from the mine or its consultants and there are no long-term records available. I have mentioned this major shortcoming in reports stretching back to the mid-1990s. The current report acknowledges this deficiency, see for example p.105 'Water Balance Studies', This reports that a reduction of assumptions by a factor of five enabled a 'reasonable balance to be achieved'. This is certainly not acceptable science!

There are many other aspects of the report that I could comment upon but I will limit this submission to those concerning the need to consider karst influences on groundwater in the area and the quite appalling history of water quality observations and the recognition of the need to adequately monitor drainage into the mine. "End of quote.

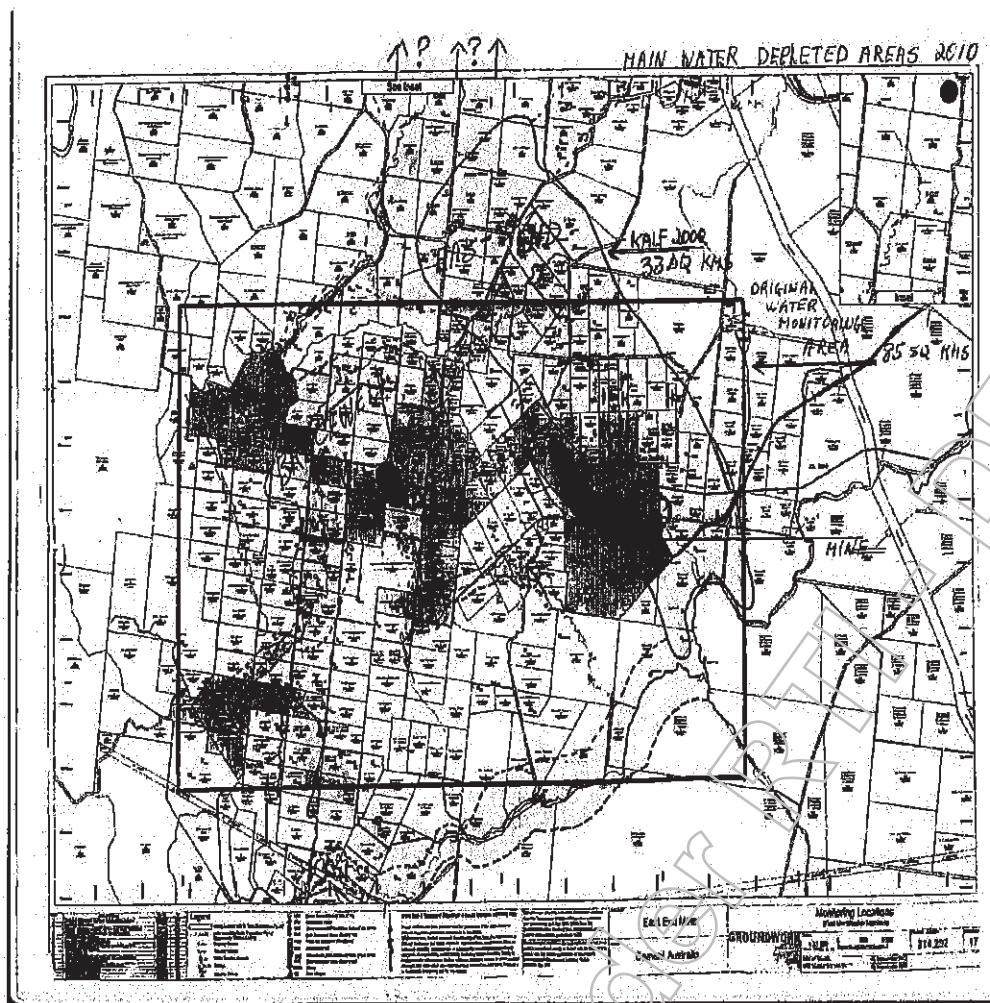
DR PETER JAMES TO DNR&W DATED 5 JANUARY 2009; (Hard copy available)Quote from Page 5

#### "5 Response Summary

The few items discussed above are not in any way meant to be exhaustive, but are provided to demonstrate the manner in which the present draft report retains its technical errors, its misleading and/or biased statements, and its continued attempts to weave a veritable Gordian Knot of technical mistakes. This draft report is obviously intended to stand as the Department's final word on the whole issue of groundwater depletion associated with the East End Mine operations.....

The response of this writer is that the draft report should be scrapped in its entirety, with the possible exceptions of some of the recommendations (p 107, 108). A completely new, comprehensive and objective report should then be initiated, utilising known geology, geohydrological characteristics and established geohydrological principles (including karst behaviour), together with historical aspects in their rightful context." End of quote.

Note: DNR&W's 2011 Report findings are basically unchanged.



The above map of the East End Mine Water Monitoring Area, represents EEMAG's version (using water monitoring data) of the main water depleted areas prior to 2010 (some depletion lies outside of water monitoring area) identified in mushroom pink colour (the cause of water loss in Bracewell and into Cedarvale remains disputed). The original water monitoring area of 85 sq km is depicted within the green lines. The Kalf 2000 Map of the mine impacted area is superimposed, as is the East End mine (which has expanded considerably since 1995). East End and Bracewell areas are named. (In 2010 DERM declined EEMAG's request for the mine's EA to be reframed so that it was representative of its dewatering impacts (evaluated by DERM in 2008 as affecting approx 50 sq km of East End aquifer)

EEMAG wishes to thank Groundwork for the use of the map.

**Empirical evidence from 2010 recharge included to show Official findings are not borne out by how aquifer behaviour.**

- a) the speed at which water gets to the mine
- b) the volumes being discharged exceeds the storativity capacity of the East End aquifer and
- c) must therefore to be reliant upon upstream gravitational inflows into the East End aquifer

In March 2011 East End Mine's Transitional Environmental Program (TEP) increased dewatering to a maximum of 30 Megalitres a day until 17 June 2011. Rainfall for the calendar year was 1962 mm (the second highest on record;) annual average under 900 mm.



- Cement Australia's Annual Water Monitoring Report of September 2011 quotes 2826 ML discharge from 1 July 2010 to 30 June 2011 (average 7.7 ML / D) while post June 2010 pumping at 6 ML /D was required to "break even."
- On 14 December 2011 Cement Australia DERM granted a further TEP )max 30 ML /D as from 25 January 2012 until 30 June 2012. The approval is for a maximum of **30 Megalitres a day** discharge.
- Since the dewatering commenced in 1979, East End has never had a full recharge and Bracewell has had only two - in 1991 and 2010. In a district that pre-mining, functioned as a single integrated aquifer system, full recharge occurred in isolation at Cedar Vale in March 2010 and at Bracewell in December 2010. East End had only a partial recharge, with representative Bore 03, 1.5 km from the mine, 13.18m lower at peak in March 2011 than in 1991. (Water Monitoring Data available)

To date no official studies have been undertaken to verify these outcomes

**Mt Larcom Community Restoration Project Report (2003) – findings of bureaucratic capture by mining companies and political agreements being allowed to override environmental considerations**

Executive Summary Items 11 to 14 inclusive (Page IV) Recommendation 9 (Page IX) and extract from Pages 48 and 49 are quoted below:

"11. A significant element of the project concerned the evaluation of planning and consultation procedures used by various organisations in the district – notably the Shire, EPA, NR&M, State Development, Gladstone Economic Industry Development Board [GEIBD] and the Gladstone Area Water Board. The performance of two industrial companies, Queensland Cement Limited (QCL, East End mine) and Southern Pacific Petroleum (Shale Oil) were closely examined. Documents show State Development and the GEIBD provide high level Federal briefings on SDA matters to a range of senior political figures. On a State level, the briefings include the Hon Premier, Minister for State Development and Director-General of State Development. Under the circumstances, the Federal Government's informed role and the Commonwealth's various incentives to industry, suggest that any criticism of the planning and approval processes connected with what is considered to be a severely flawed industrial model must, by definition, also include the Commonwealth. Several processes were deemed inadequate, biased or ineffective in achieving sound planning outcomes. A range of recommendations on correcting perceived weaknesses are made.

12. In recent years the consultative approach has been incorporated into planning procedures. There is evidence that on several occasions the consultation process has been abused and has degenerated into an inequitable manipulative farce.

13. Statewide there are several examples of the State abandoning the concept of co-existence by allowing political decisions to over-ride environmental considerations. The buyouts of Targinnie and lease renewals at Mt Larcom without first addressing residual impacts are considered prime examples. Once departures from decisions based upon science and sound environmental principles occur, planning and approval processes become a travesty and are liable to political and commercial manipulation. Such conduct may help explain the high level of community distrust and general loss of confidence in the administrative and political system. A summary of individual issues for corrective action is set out in the Recommendations section.

14. When political decisions pre-empt research findings, scientists and technical experts within Government Agencies operate in a highly stressful and compromised climate. Case studies at Mt Larcom and Targinnie show such circumstances are not conducive to good science and undermine the objective implementation of environmental legislation. As a result, regulatory compliance fails."

## RECOMMENDATION 9. Community Engagement: Equity and Ethics

**Issue:** There are perceptions that there is evidence of illegal activity and unethical behaviour on the part of industry and state agencies. A distinction needs to be made between companies and agencies involved in legal environmental negotiations and approval processes and those that engage in unethical conduct and deal in manipulative procedures. This warrants investigation.

- Mt Larcom CRP Report, Page 48, Background to Lack of Trust between Government, Mining Companies and the People, states in part:

“While the evidence of shonky dealing during the 1990’s may be regarded as outdated and no longer relevant to today’s ‘enlightened’ policies, there is evidence that the problem of ‘capture’ of departmental officers by mining companies, through compliant senior bureaucrats, has not been overcome.” End of quotes.

### The enormous bargaining power of mining companies

- The level of bargaining power exerted on Governments by Companies is illustrated by revelations regarding Mount Isa Mine’s operations (allegedly causing elevated blood lead levels in children) published in Hansard 13-15 May 2003, Page 1792, Para 6 quote: “The Mount Isa Mines Limited Agreement Act 1985 facilitated a lower standard for lead emissions than that applicable to other parts of the state. **It was enacted by the Bjelke-Petersen government in response to then mine owner MIM’s threat to move smelting operations offshore should higher and more expensive emissions standards be enacted.**” (My bold)

Supporting documentation as per attached listed supplied on CD, and hard copies as per attached list. Additional documentation available.

Thank you for accepting our submission

Yours sincerely,

s.73 Organisation



### LISTY OF SUPPORTING DOCUMENTATION

#### CD OF MT LARCOM COMMUNITY RESTORATION PROJECT (CRP) REPORT (2003)

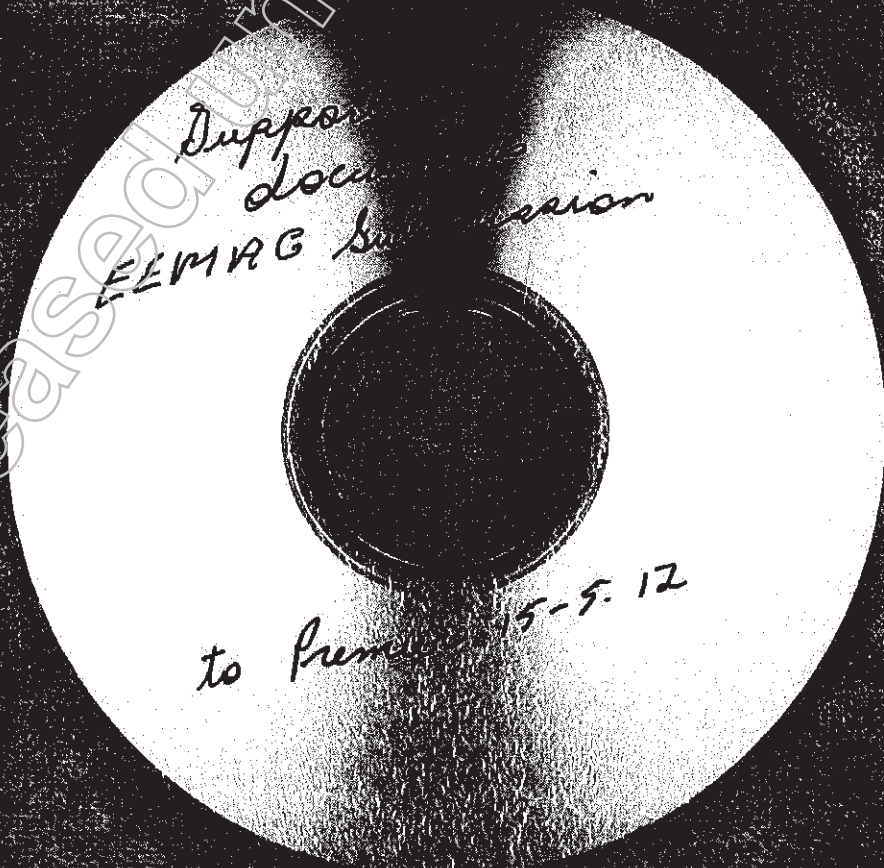
#### CD containing

1. Electronic copy of Dr Dudgeon’s August 1995 Interim Draft Report “Groundwater Monitoring around Bracewell-East End Mining Leases” findings used for East End Mine 1996 Gladstone Expansion IAS
2. FOI of 20.12.1988 Water Resources Rockhampton Ministerial Correspondence, “Data on hand indicates that water levels may have fallen by up to 2.5 metres at distances of 2 km from the mine due to mine dewatering. The obvious conclusion is that the local farming community fears are realistic.”



3. Figure 9 "Mine Impacted Area 1991" DNR Resource Sciences Centre, Extract from DNR 1997/98 Position Paper on East End Mine and Environs
4. FOI EPA Memorandum, 22. October 2001, Status of Environmental Authorities at East End, Quote Item 2 "*EIS conducted in 1996 when cement plant upgraded still valid*"
5. Kalf (2000) Map of Mine Pit Zone of Influence
6. Letter of 21 September 2007 By Smith, Finlayson and James to Minister for Natural Resources & Water raising concerns on DNR&W's Consultation and technical assessment processes

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If digitised, this is now an ELECTRONIC DOCUMENT. ENTER ALL DATA in TRIM.		
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**FACSIMILE TRANSMISSION**

To: **Mr. Bill Upton**  
Co-ordinator General's Office **Fax No: 229.7348**

From: **P. O'Callaghan**  
Group Planning Executive **Our Fax No: 61-7-367 0348**

Date: **14 June, 1995** **Total No. of Pages: 2**

Subject: **\* QCL GLADSTONE EXPANSION : CRITICAL ISSUES**

Please telephone Di Dale on 61-7-375 0431 if any part of this transmission failed or was misdirected.

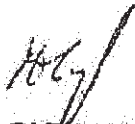
\* As requested at our meeting of 8/6/95, we have identified the critical issues for the project from QCL's perspective. Specifically this has been done with the objective of gaining shareholder approval within the timeframe discussed.

1. Convincing Government to meet costs of any upgrades to physical infrastructure, especially the State roads and electricity grid.
2. Gaining approval from the relevant authorities to use the road network to transport raw materials.
3. In conjunction with point 2, maximising the truck payload so as to minimise trucking numbers.
4. Obtaining world competitive electricity charges
- \* 5. Obtaining some form of guarantee on mining lease renewals so as to assure QCL's shareholders that there are adequate, secure, approved raw material reserves.
6. Obtaining best available rates for coal, coal royalties and rail freight.
- \* 7. Guaranteeing the status quo remains with regard to environmental licences on current operations.

We have not listed all the minor issues nor those issues on which QCL is to take the lead in negotiations, e.g. priority berthing and renegotiation of local agreements. The aim here is to prioritise issues to allow COG to best allocate resources.

We have also not listed items such as DEH approvals. Although the timing is critical, we do not believe these will require difficult negotiation, but rather consistent effort to obtain the fastest possible response.

Regards,



Paul O'Callaghan  
Group Planning Executive

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Fax (08) 9328 8433  
<http://www.golder.com>



**DRAFT  
REPORT ON**

**REVIEW OF  
HYDROLOGICAL IMPACTS  
EAST END MINE  
MOUNT LARCOM, QUEENSLAND**

**ENTERED IN  
DATABASE**

Submitted to:

Environmental Protection Agency  
PO Box 3130  
ROCKHAMPTON SHOPPING FAIR QLD 4701

**DISTRIBUTION:**

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March 2001

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- an independent assessment of the extent of potential effects of the East End Mine on local groundwater resources
- an independent assessment of the effects of drought and natural depletion on local groundwater levels
- the current degree and extent of the impact of the mine, including a determination of which land holders are currently affected by depletion of groundwater supplies directly as a result of the mining operations and the extent of that effect on each landowner
- an appropriate methodology for the monitoring, assessment and reporting of changes in the degree and extent of impacts by the East End Mine on local groundwater resources.

The EPA brief further required that *"the consultant shall identify a list of issues of concern to the East End Mine Action Group (Inc) and ensure that in reporting the independent technical assessment these issues are each reviewed and reported on in a specific manner."*

This draft does not include a determination of which landowners are affected by the mine dewatering.

### 3.2 Methodology of Review

There has been a large amount of analysis of the groundwater system and effects of rainfall patterns and mine dewatering. It is not realistic to review the fine detail of every component of the various studies without spending a very large amount of time. Instead, the key studies have been checked more at an overview level to check their conceptual validity, and more detailed attention has been paid to specific areas of concern.

The review was undertaken in several stages, broadly as follows:

- a. initial reading of relevant documents
- b. site visits to meet QCL and EEMAG representatives and to become familiar with the area
- c. discussions with various government officers who have been involved with the issues
- d. discussions with technical consultants who have contributed to various studies
- e. assessment of the existing information, analyses and interpretation.

It is important to recognise that this assessment could not incorporate a complete re-analysis of the large amounts of monitoring data, geological information and anecdotal information which are available. Studies carried out to reach the various conclusions to date have required

\* This draft has been prepared solely for the purposes of discussion with EPA and has not been subjected to Golder

Associates' normal review processes

Golder Associates

# GROUNDWORK

Resources · Environment  
· Land Use



## TRANSMITTAL FORM

<b>TO:</b>	EEMAG	<b>FROM:</b>	Rob Sowerby
<b>ADDRESS:</b>	c/ Mt Larcom Post Office, East End Mt Larcom Qld 4695	<b>DATE:</b>	18 March 2004
<b>RE:</b>	East End Mine - March 2004 Water Monitoring results	<b>REFERENCE:</b>	214_2341

COURIER       POST       OTHER

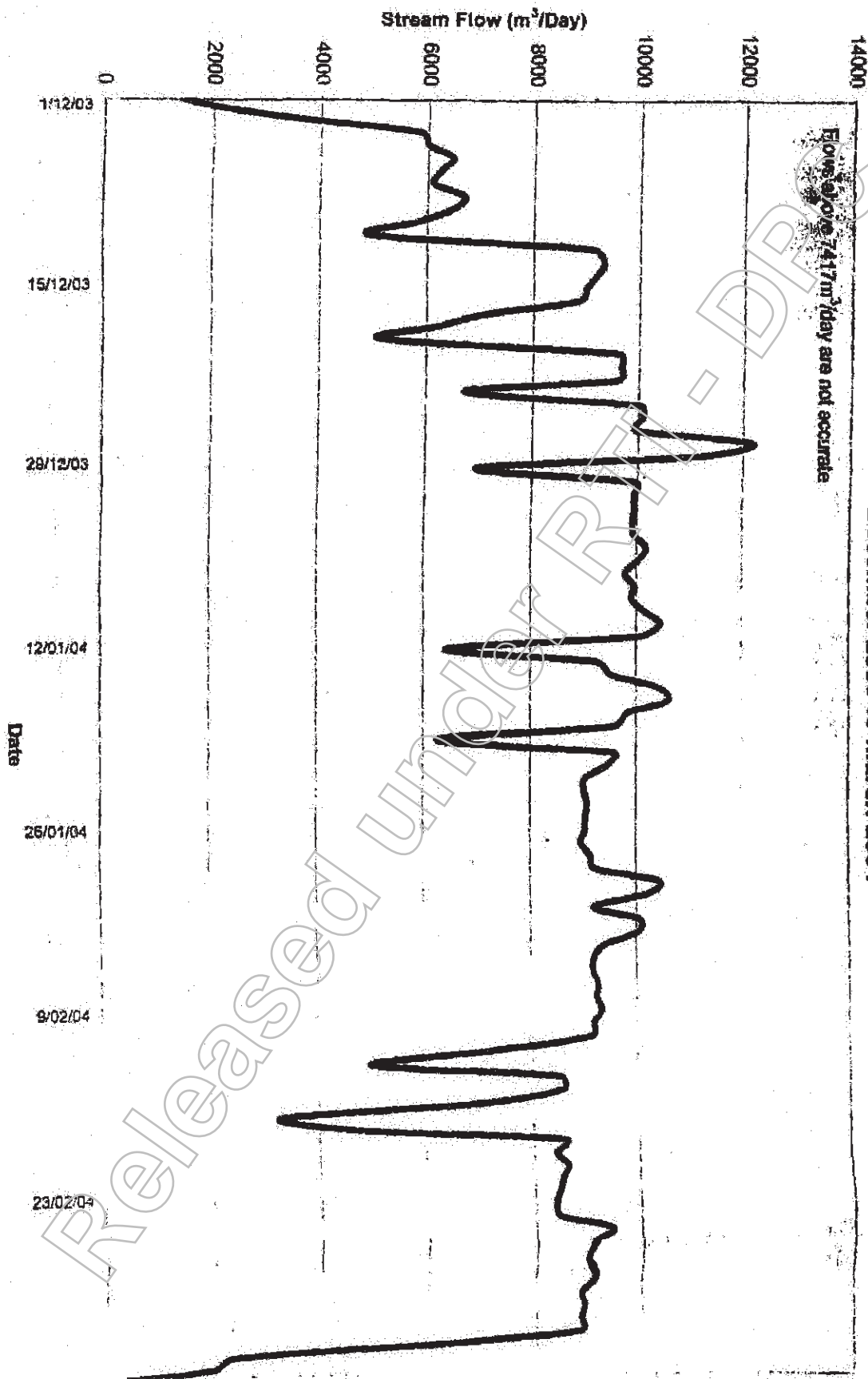
### MESSAGE:

Please find enclosed the quarterly water monitoring results for the East End Mine - March 2004.

Regards  
GROUNDWORK EMS Pty Ltd

per: *R* 

*Overcharge 1,000 megalitres in  
3 months*



Estimated Stream Flow at Weir 6  
December 2003 to March 2004

Released under RTI - DP/0



**DRAFT**

## Technical Forum on Groundwater Aspects of East End Mine Dewatering

### Key Issues

Ray Volker  
Professor of Civil Engineering  
University of Queensland

#### 1. Introduction

I consider the key technical issues are related to two major topics. These are:

- the amount of drought impact on water levels in the aquifers and on flow in streams versus the impact of East End Mine dewatering on the aquifers and streams, and
- the nature of the connection between Bracewell and East End Mine zone in relation to groundwater flow.

Attempts to obtain a resolution to these issues will, I believe, require a fundamental change in approach by the parties concerned, mainly by Queensland Cement Limited (QCL) and EEMAG. If there is to be a genuine attempt at reaching a common understanding of the groundwater depletion effects and their causes, there will need to be a commitment to working together collaboratively and cooperatively. This includes work on hydrogeological and hydrological aspects incorporated in the groundwater model developed for QCL as a groundwater management tool.

#### 2. Drought Effects.

Both Department of Natural Resources (DNR) [1] and Kell and Associates (KA) [2] provide analyses of rainfalls to show that the period of several years following 1991 represented a significant drought in the Mount Laramie district. DNR[1] analysed Mount Laramie rainfalls. These were plotted as cumulative deviations from the mean and a tabulation was also presented to show duration and intensity of droughts in the period from 1910 to 1995. While their analysis suggests that the period 1991 to 1995 was a drought of high intensity, there were several previous periods of higher intensity drought though none with a combination of longer duration and higher intensity. Simply comparing drought magnitudes from an analysis of rainfalls does not quantify the effects on groundwater levels. Additional evidence is required in the form of a relationship between rainfall and groundwater recharge. DNR[1] did not present any such relationship so the consequences for groundwater levels remain vague and qualitative only.

It is true that if rainfall is the dominant or sole source of recharge to an aquifer, then a drought must be expected to influence groundwater levels over some timeframe the duration of which depends on the recharge process and path to the water table. Determining the extent of drought impact is a difficult task at the best of times. Other factors besides recharge affect water level declines such as pumping, especially for irrigation if this is significant, and in this case for mine dewatering.

KA[2] used rainfall records from the Lucke gauge for the period 1947 to 1998 plotted as rainfall deviations and a 2 year moving average. This showed that from 1991 to 1998 there was below average rainfall in each year except 1996, when the rainfall was only marginally above average. While KA[2] claim that this was the period of "by far the longest below average rainfall on record", Figure 2 in that

**DRAFT**

document shows that, during the period 1964 to 1970, all years recorded below average rainfall except 1968, when the rainfall was also only marginally above average. The groundwater model produced by KA does, of course, incorporate an estimate of recharge and this is related to rainfall. Estimating groundwater recharge is often the most difficult part of quantifying the water balance of an aquifer. It varies in time and space and it is usually linked in the calibration process with aquifer storativity and hydraulic conductivity, both of which are themselves difficult to estimate.

In their hydraulic modelling exercise, KA[2] state that "recharge was taken as a fraction of monthly rainfall that was set to variable spatial values over the area in the range 2% to 8% with the default set at 5%. All recharge values remained constant throughout the simulation."

Obviously this is an approximation. This is not a criticism, merely a statement of fact because, as stated above, recharge assessment is very difficult. On the other hand it must then be accepted that other combinations of rainfall recharge and hydraulic parameters may give an acceptable model calibration. If, for example, the aquifer storativity is greater than that used in the model, then one would expect water levels to be less sensitive to changes in rainfall patterns. The basic message is that effects of drought on water levels are subject to a great deal of uncertainty and it would be prudent to include consideration of all of the relevant information.

Local knowledge and anecdotal evidence suggests that groundwater levels both in East End and in Bracewell in the period 1991 to 1999 have been markedly lower than in previous droughts and that they have responded more slowly to substantial rainfalls. For example, it is claimed that "Arthur Murphy's bore" had the same standing water level in April 1967, towards the end of the 1964 to 1967 drought, as it had when drilled in 1915. In the 1990's, however, the water level in the bore was substantially lower. I do not know whether these levels can be checked and how important they may be. What is important, however, is that it is not clear there has been a meaningful attempt to ensure there are no anomalies between results generated by the model and information such as this available from local residents. Such an exercise should at the very least, generate greater confidence by the local community in the results being produced as the basis for consideration by QCL of the impacts of mine dewatering.

Similarly, a report by James[3] presents data comparing groundwater levels in East End and the lower end of the Bracewell aquifers with levels in other areas in the immediately vicinity. This comparison suggests that the drought effects claimed by DNR and KA were not evident in those other areas thus throwing doubt on the claimed drought effects in comparison with depletions due to mine dewatering. Again this is not to prejudge the accuracy and depth of the different analyses conducted by different parties, but to suggest that the opportunity to resolve some of these issues does not seem to have been taken by adopting a collaborative and interactive approach in the development of the model reported in KA[2]

### 3. Bracewell to East End Hydraulic Connection

There is a difference of opinion on the degree of hydraulic connectivity between Bracewell and East End aquifers. DNR[1] claim that the cone of depression around the minesite cannot extend into the Bracewell area because of low permeability of the strata near Weir 2. James[3] reports the results of an excavation near Weir 2 and calculation of hydraulic conductivity values from the inflow of water to the pits. He further claims that a laterally extensive layer of relatively high hydraulic conductivity occurs across the flat lands of the valley constriction near Weir 2. This is dismissed by DNR[1]. It would

**DRAFT**

appear that there was confusion on the part of DNR[1] about the validity of the calculation of hydraulic conductivity from the pit test inflow and the implications for down valley flow.

If there is a relatively high permeability layer through the valley near Weir 2 and if it is confined under pre-mining conditions, then a lowering of the water level at the downstream due to mining will increase the flow through it from Bracewell to East End aquifers. The magnitude of the consequent influence on Bracewell groundwater levels would depend on a number of factors, most of which are open to considerable uncertainty. KA[2] claim that the modelling results show no measurable influence of pit drawdown in the Bracewell aquifer. Of course that conclusion is directly dependent on the assumptions made in the development of the model and on the calibration process.

As highlighted in section 2 above, calibration parameters are highly interdependent and the calibration process produces non-unique results. In simple terms what this means is that a different model with quite different properties might be devised to produce the same level of agreement with recorded results as that summarised in KA[2]. Again this is not a criticism of the particular model developed; the same statement is true of most groundwater models. Nevertheless it does highlight the need to address additional information and alternative hypotheses proposed. The amount of information provided on model parameters and the calibration process in KA[2] is very limited and this makes it difficult to assess whether all reasonable possibilities have been explored. The same message is reiterated. It is much more likely that consensus would be achieved or approached if there had been collaboration and interaction in the development of the model rather than its presentation together with results from it as a fait accompli.

#### 4. Summary

While the key technical issues which I believe need to be resolved are those of drought effects and the hydraulic connection near Weir 2 as outlined above, perhaps the most significant advance will come from a change in attitude and approach on the part of the parties involved. Given the history and the skepticism which have developed over many years, a substantial improvement in this area will not be accomplished easily. I am not privy to all the negotiations and discussions which have occurred but there is a clear perception on the part of the landholders that the company (QCL) has adopted a position of seeking to admit a minimal estimate of the extent of the impact of mine dewatering. For example it is not clear to an outsider that the Company has been willing to acknowledge that the initial predictions of areal extent of impact were too low even in the light of subsequent experience. I daresay that counter examples on the part of the landholders may be produced. This only serves to highlight the need for a different approach.

As a final point, it seems to me that it should be incumbent on QCL as the company which is causing groundwater depletion by mine dewatering to ensure that the impacts of those depletions are remedied appropriately. It also seems that it should be up to QCL to demonstrate to the regulating agencies and the landholders that they will take all reasonable steps to predict the consequences of the mine drawdown on surrounding groundwater systems and alleviate or remedy them as appropriate, rather than to require the landholders to demonstrate the degree and consequences of impact before compensation is considered.

**DRAFT**

**5. References**

1. Department of Natural Resources. Position paper: East End Mine and Environs, February 1998.
2. Kalf and Associates. QCL Groundwater Flow Model: Background, Hydrogeology, Model Description and Current Findings - Summary Document, (undated).
3. James, P. M. East End Mine - Groundwater Review: Summary Document, January 1998.

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Prime Questions

Are you for the people?

Or are you in bed with miners?

Cancel all rights to mine

Coal from gas on grounds 17

Not environmentally sound

Also cancel coal mines on

Prime Agribusiness - Soils Degrading Soils

Food Security Priority one,

s.73  
Personal  
Information

Listen to the people

If you a good Premier  
Remember Graham of TEXAS.

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s.73 Organisation

	No.
28 MAY 2012	Date Recd DPC
Doc No.	

Mr Campbell Newman MP

Premier of Queensland

Parliament House

George Street

Brisbane Q. 4000

Dear Mr Newman,

The members of the [redacted] wholeheartedly congratulate you and the LNP team, on your resounding win in the State election.

The Newman LNP government has started out on the right track with the appointment of Lawrence Springborg as Health Minister and the appointments of both Mike Horan and Terry White to chair the Hospital and Health Boards, in the Toowoomba Region and the Metro South Brisbane Region respectively.

The branch members were pleased to note that the LNP government has abolished the Dept of Climate Change – have plans to control the numbers of Flying Foxes – and has stood up for the Greek community in Musgrave Park.

It is to be hoped that this LNP government, ministers and all departments, will listen to the very real concerns of their supporters, who have had to bear the burden of crushing Labor legislation under the Beattie and Bligh governments.

The breaking up of DERM into manageable departments is to be commended.

The LNP policy taken to the State election was to remove the Wild Rivers declarations from our Queensland rivers.

We ask that this policy be honoured and that Wild Rivers declarations be removed from all Queensland rivers, including the Cooper Creek Catchment area.

The landowners in the Cooper Creek catchment area, maintain that the pristine condition of the Cooper Creek catchment area is due wholly and solely to their excellent care and management of the land and its' water-courses. This care and management by landowners, has seen this catchment maintain its' pristine condition, not only in the good years, but also in years of severe drought.

We are well aware that a "Wild Rivers" declaration does not protect the Cooper Creek catchment area from mining.

Wild Dogs (dingos) are a huge concern.

We ask for a statewide program to reduce the numbers of wild dogs, with 1080 baits of increased strength, the new PAP poison or both, a uniform bounty across the state, training sessions on trapping and calling dogs, subsidies/loans for dog netting fencing.


Great Artesian Basin - Our branch is gravely concerned that Coal Seam Gas drilling will have a drastic effect on (a) the water levels in the aquifers - 1 to 4 metres drop and (b) the permeability between the aquifers above the Hutton (c) the effect of the superior pressure of the Hutton.

Changes to the Queensland mining laws are urgently needed. There needs to be the same rules for mining companies and landowners. Landowners rights to manage their land, have been eroded. Substantial compensation, to be paid in perpetuity, to landowners, for mining/gas holes drilled on their land. We suggest, that the Queensland government investigate the Canadian system of compensation for landowners.

Congratulations, once again. We all look forward to meeting you, at some time and invite you to visit [redacted] when you are next in the electorate of Gregory.

Yours sincerely,

s.73 Organisation



**Sarah Partosh**

---

**From:** The Premier  
**Sent:** Monday, 21 May 2012 3:16 PM  
**To:** The Premier  
**Subject:** Water Water Everywhere...But Not a Drop to Spare  
**Attachments:** Water Water Everywhere - But Not A Drop To Spare.pdf

**Importance:** High

Subject: Water Water Everywhere...But Not a Drop to Spare

Title: Mr

First Name: [Redacted] s.73 Personal Information

Family Name: [Redacted]

Email: [Redacted]

-----  
Address:

Town:

State:

Postcode:

Email: [Redacted]

-----  
Comment:

Newsletter attached regarding recent decisions

Released under RTI - DPC





## Water Water Everywhere...But Not a Drop to Spare

Some groundbreaking things have been happening in the world of **WATER**, and it's not the recent floods.

### Maladministration in Water Allocation from 2002

Food and water security are two significant issues that have been addressed in a recent appeal where Lestar Manning instructed Phil Sheridan before the Land Court. The extraordinary decision will have broader ramifications for the process of water allocation throughout the state.

Member P A Smith's reasons for judgement said *"However, concerns that I have as a consequence of the evidence placed before me in these appeals and in particular as set out in Exhibit 43 leads me to the conclusion that it is appropriate to bring my concerns of maladministration to the attention of the Honourable the Premier and the Honourable the Minister for Natural Resources and Mines."*

The reasons for judgement handed down in Brisbane on 5 April 2012, cited as *Gallo and Williams v Chief Executive, Department of Environment and Resource Management* [2012] Q LC 0015, highlight the long-term maladministration of water allocation in Management Area B of the Atherton subartesian area.

Evidence before the court was that since the inception of the Barron Water Resource Plan in 2002 and until April 2010 no licenses had been assessed on the basis of water use efficiency. Water use efficiency is a fundamental criteria in the *Water Act* 2000 and in the Barron Water Resource Plan 2002 and Resource Operations Plan 2005.

At some point in time the Department became concerned about the volume of subartesian water being allocated and stopped processing applications that had been made, to allow it to declare a moratorium under the *Water Act* 2000. Many farmers had expended considerable sums on constructing water supply infrastructure only to have their applications inappropriately held by the Department without being processed pending the introduction of the moratorium.

The ramifications for this maladministration may not be limited to the Atherton tablelands.

The new minister, the Honourable Mr Cripps, has already referred this matter to the Crime and Misconduct Commission. We await the outcome.

\*\*\*\*\*

### Coal Seam Gas and Groundwater

The Environmental Impact Statement for the Surat Gas Project also deals with groundwater and has just been released.

Chapter 14 deals with groundwater and chapter 28 deals with the cumulative impacts.

At figure 14.3 in chapter 14 there is a pictorial representation of the underground stratification and groundwater systems present within the project development area. It identifies shallow groundwater system, intermediate groundwater system, coal seam gas groundwater system and deep groundwater system. Figure 14.5 shows the direction of groundwater flow for the purpose of the great artesian basin and identifies the intake (recharge) areas.

Figures 28.3 to 28.6 inclusive identify the 2039 year predicted unmitigated peak drawdown contours and the 2061 year predicted unmitigated contours 10 years after production ceases. On each of those contour maps the relevant state trigger threshold drawdown contour is identified. The drawdown contour specified by the state for the shallow groundwater system is 2 m and for each of the following 3 groundwater systems is 5 m.

The area affected goes north of Wandoan, south towards Goondiwindi, east to Toowoomba and west of Roma.

It is a huge area in which the effects of drawdown on water supply through the four identified aquifers will be significant.

Table 28.3 provides the predicted maximum of groundwater drawdown -- cumulative as being 2.5 m for the shallow groundwater system, 60 m for the intermediate groundwater system, 150 m for the coal seam groundwater system (Walloon coal measures) and 75 m for the deep groundwater system. Across each of the aquifers the estimated drawdown is 287.5 m.

The extent of the impacts identified must be considered by farming communities and their need for security for water supply and food production.

These impacts should also be considered in terms of the proposed coal seam gas conduct and compensation agreements and impacts upon bores being used for farm and domestic purposes.

\*\*\*\*\*

## Water Prosecutions

The Department commenced a spate of prosecutions against farmers in the Atherton Tableland for the alleged unauthorised taking of water, predominantly under section 808 (1) of the *Water Act* 2000 (the Act).

**p&e Law** represented numerous parties in relation to Complaints Made and Summons for the alleged breaches, took instructions, sought to dissuade the Department of continuing with the actions, briefed Counsel and appeared and instructed in the Magistrates Court.

The Department attempted to utilise powers under section 760 of the Act requiring production of documents and section 763 of the Act requiring production of information. We were able to challenge many of those on behalf of our clients because of defective procedural requirements. If validly issued, notices can require a spouse to provide evidence against their partner.

Whilst all of the prosecutions will not proceed, they have caused our clients many anxious moments.

A fundamental difficulty arises with the approach of the Department where the farming community needs to have time to adjust to water restrictions which impact upon their capacity to earn an income from the land. A farmer telephoned whilst quite distressed asking if he could continue to water a crop in circumstances where he would exceed his allocation. If he failed to water the crop he would lose the crop. He had been told that water trading would be instigated and had arranged for the extra water and had planted accordingly. As water trading was not instigated at that time he was left with the unpalatable choice of a potential prosecution or a potential loss of a crop.

The former Water Advisory Group had advised the previous government of the difficulties with the restricted allocations.

We commend the new Minister, who we understand will be reintroducing the Water Advisory Groups and has a good understanding of the needs of the farming community and the impacts of the former government's regime on them.

With a forecast review of the Barron Plan it is timely for the farming community to assist the new Minister in creating a plan that provides appropriate water security for farming to enable the proper utilisation of the good quality agricultural land on the Tablelands.

\*\*\*\*\*

### Also, if you haven't heard, we have moved...



Check out our new office. Big and Blue and you cannot miss us! Come for a visit.

#### Suite 2, 37 Dalton Drive, Maroochydore

We back onto the palatial surrounds of the Horton Park Golf Course.



For those of you based in the north of the State, feel free to contact our established Cairns office at 211 Draper Street.

For further details on how our specialist team of solicitors can assist you and to read about other important points of law and legislation, you can visit our new website at [www.paelaw.com](http://www.paelaw.com).

Our team consists of:

Lestar Manning - Partner  
Andrew Williams

Michael Neal - Partner  
Marlies Hobbs

Matt Patterson - Partner  
Annabelle Nilsson

Autumn Update 2012

cairns po box 2337 cairns qld 4870 > 211 draper street cairns qld 4870 > t 07 4041 7622 > f 07 4041 7633 > e cairnsreception@paelaw.com

sunshine coast po box 2015 sunshine plaza qld 4558 > suite 2, 37 dalton drive maroochydore qld 4558 > t 07 5479 0155 > f 07 5479 5070

> e reception@paelaw.com > w www.paelaw.com > ABN 12 209 877 558

**Sarah Partosh**

---

**From:** [REDACTED]@hotmail.com  
**Sent:** Thursday, 24 May 2012 8:12 AM  
**To:** The Premier  
**Subject:** RE: oil and gas jos

dear sir,  
thank you for your reply on this matter  
would love to hear from mr newman on this very important matter

my address



yours sincerely



---

**From:** The.Premier@premiers.qld.gov.au  
**To:** [REDACTED]@hotmail.com  
**Date:** Thu, 24 May 2012 08:04:21 +1000  
**Subject:** RE: oil and gas jos

Thank you for your email to the Honourable Campbell Newman MP, Premier of Queensland. We confirm receipt of your message. If you would like to provide an opportunity for the Premier to respond, please email back with your postal address and your correspondence will be actioned as appropriate. We appreciate the time you have taken to contact our office.

Ministerial Officer  
Office of the Premier  
♻️ Please consider the environment before printing this email

**From:** [REDACTED]@hotmail.com  
**Sent:** Wednesday, 23 May 2012 1:26 PM  
**To:** Ashgrove Electorate Office  
**Subject:** oil and gas jos

dear mr newman,

i know you are just getting into your new position and you will probably find what i am going to ask of you would be very difficult.  
can you please stop the engineering work on these coal seam gas jobs being taken overseas for the benefit of these big multi national companies?  
i will not mention any by name but a lot of this work should be done here in our country for the benefit of our own people and governments  
its simply not fair that this is allowed to happen leaving us with very little of the jobs that should be available  
you are a civil engineer and you will know exactly what i am talking about  
hope you do well in your new capacity

yours sincerely

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**Sarah Partosh**

---

**From:** s.73 Organisation [redacted]@acenet.net.au>  
**Sent:** Tuesday, 12 June 2012 10:09 AM  
**To:** The Premier  
**Cc:** Jon Krause MP  
**Subject:** Letter to the Premier  
**Attachments:** AgForce Project to The Premier.doc

Please see attached letter.



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11<sup>th</sup> June 2012

Hon. Campbell Newman, Premier  
PO Box 15185  
City East Qld 4002

Dear Premier,

[REDACTED]  
[REDACTED] Our key goals are to keep ratepayers informed and in turn represent their concerns with local government.

[REDACTED] is very concerned by the latest development as announced by Agforce Projects in the *Fassifern Guardian* May 30<sup>th</sup> and *Beaudesert Times* June 6<sup>th</sup> that a round of workshops is being held in the region to prepare and arm landholders for coal seam gas (CSG) mining negotiations.

Prior to the State and Council elections, both yourself, Mr Newman and the Mayor, Cr Brent, assured the people of the Scenic Rim that the region was off limits to CSG mining. Why then is AgForce Projects, a State Government funded organisation, providing landholders with maps of their properties to help with CSG negotiations, schooling them on the possible impact on their business from CSG activities and assisting them in determining adequate compensation?

The [REDACTED] can't help but wonder if Agforce's current project is introducing CSG mining to landholders by stealth?

Accordingly, we respectfully request clarification and seek your assurances that CSG is not back on the agenda for the Scenic Rim region.

Yours sincerely

[REDACTED]  
cc - The Mayor, Cr Brent  
Jon Krause MP  
SRRRC Councillors.

**Sarah Partosh**

---

**From:** s.73 Personal Information @bigpond.com>  
**Sent:** Thursday, 14 June 2012 9:14 PM  
**To:** Mike {MP Tmba South} Horan; LNP Environment Andrew Powell; LNP Ag Fish Forestt John McVeigh; LNP Deputy Premier Jeff Seeney; LNP Energy & Water Mark McArdle; LNP Health Lawrence Springborg; LNP John McVeigh; toowoomba.north@parliament.qld.gov.au; LNP Natural Res & Mines Andrew Cripps; The Premier  
**Cc:** Tony. Windsor. MP; Senator Ron Boswell (E-mail); Robert.Oakeshott.Mp; NineMSN - Current Affairs (E-mail); Julia. Gillard. MP (E-mail); Get Up Action for Australia; Bob.Katter.MP; Ian Macfarlane MP (E-mail)  
**Subject:** CSG: The fracking truth

RE: CSG risks

In the past Bureaucrats have written me pathetic letters offering poor reasoning for the continuation of CSG development.

At what cost are you going to go to balance the budget?:  
The Health and welfare of Queensland?  
The Health and welfare of the Environment?  
The Health and welfare of Fauna / animals and Flora / plant life?  
The destruction of a reasonable life for our grandchildren?

The policies you make now have an impact for the next 20 to 100 years and beyond.

Approx 80% of all levels of Governments policies over the last 100 years have been made for the short term (less than 10 years)

Don't play with peoples lives. Have a vision for a healthy future. The people of Queensland put in in charge of You running this state NOT mining company directors and CEO telling you what to do.

I am not against mining but I am against the high long term risk of CSG development; there are so many unknown factors.

I am sure you love your children and grandchildren plus the environment that you will hand over to them.

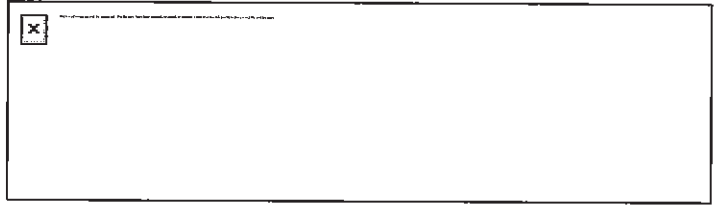
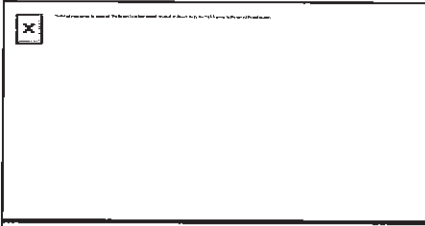
It is simply NOT worth the risk even if we have to drop our standard of living and pay more taxes to balance the budget

**FROM:-**



Ph.

See Your Alert Online



**How much do you really know about fracking?  
Take the quiz and find out**

May 16, 2012

Dear S.73  
Personal

**Do you know the truth about fracking?** In communities across the country, they're learning about fracking the hard way.

Take Ohio, for example. A year ago, few people knew what fracking was. Today, fracking is at the center of a political firestorm, with citizens rallying against it, and oil and gas industry lobbyists putting pressure on state officials to protect their "right" to frack.

In Youngstown, OH, Mayor Sammarone gets it. He knows fracking is dangerous, and this year he bought earthquake insurance for his home – after Youngstown started experiencing fracking-related earthquakes.

We haven't asked him, but we bet Mayor Sammarone would do well on this fracking quiz. **Do you know what happens when fracking comes to town?**

On the other side, Ohio's governor doesn't seem to realize the risks of fracking. Not only is Governor Kasich's new energy plan full of loopholes for fracking companies to exploit, but he has even proposed an award, the "Governor's Award for Environmental Stewardship," to help his oil and gas industry friends greenwash their image.

Even if some elected officials think that fracking is safe, more and more people are realizing the truth. Over 20 communities in Ohio alone, including the city of Cincinnati, have passed local resolutions against fracking, and across the country, there are dozens more. This has happened because ordinary people have **armed themselves with knowledge**, and stepped up to protect themselves.

**Take our new quiz to see how much you really know about fracking.**

Whether you live in an area affected by fracking, or whether you're hundreds of miles away, you need to know how fracking could affect you and your loved ones.

Test your knowledge of fracking:

**[http://action.foodandwaterwatch.org/p/salsa/web/common/public/content?content\\_item\\_KEY=11448](http://action.foodandwaterwatch.org/p/salsa/web/common/public/content?content_item_KEY=11448)**

Thanks for taking action,



Alex Beauchamp  
Central Region Director  
Food & Water Watch  
abeauchamp(at)fwwatch(dot)org

P.S. This is part of a series of stories from communities that we're working with around the country who are standing up and fighting back against the multi-million dollar fracking industry. If you missed the story about moms standing up against fracking in Erie, CO, you can [check it out here](#).

<a href="#">Unsubscribe</a> <a href="#">Donate</a> <a href="#">Contact</a> <a href="#">Visit us online</a>	<p>Sent by Food &amp; Water Watch to <a href="mailto:suggy51@bigpond.com">suggy51@bigpond.com</a></p> <p>Food &amp; Water Watch is a nonprofit consumer organization that works to ensure clean water and safe food. We challenge the corporate control and abuse of our food and water resources by empowering people to take action and by transforming the public consciousness about what we eat and drink.</p>
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Food & Water Watch, 1616 P Street, NW, Suite 300, Washington, DC 20036 • (202) 683-2500

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**Sarah Partosh**

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**From:** s.73 Personal Information [REDACTED]@gmail.com>  
**Sent:** Monday, 25 June 2012 10:05 AM  
**To:** The Premier  
**Subject:** Croftby

Dear Mr Newman,

I am writing this email to remind you of your pre election promises regarding mining and csg in The Scenic Rim. I am a resident here and a local business owner and am therefore concerned about any mining activity in our area. The evidence suggests that mining activity in and around small towns has numerous negative impacts. I am particularly concerned about the advanced development of the minto coal mine by Allegiance Coal. If this development proceeds it's likely effect will be environmental damage to the surrounding area, increased use of our roads by large trucks, coal dust and undue stress on the people that live in this area. Residents here, strongly believe that any mining activity is extremely inappropriate in The Scenic Rim. Both long term residents and new citizens who moved here to enjoy the beauty of The Scenic Rim will be adversely affected by any future developments. I Implore you to honor your commitments to our region and not use political spin to sway from your promises.

Kind Regards

[REDACTED]  
[REDACTED] Boonah

Released under RTI/2008

## Sarah Partosh

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**From:** [REDACTED] s.73 Personal Information [REDACTED].com.au>  
**Sent:** Tuesday, 26 June 2012 4:50 PM  
**To:** The Premier  
**Cc:** tourism@ministerial.qld.gov.au; scott.buchholz.mp@aph.gov.au;  
rick.s@scenicrim.qld.gov.au; nrm@ministerial.qld.gov.au;  
nationalparks@ministerial.qld.gov.au; mayor@scenicrim.qld.gov.au;  
localgovernment@ministerial.qld.gov.au; environment@ministerial.qld.gov.au;  
energyandwater@ministerial.qld.gov.au; deputypremier@ministerial.qld.gov.au;  
beaudesert@parliament.qld.gov.au; agriculture@ministerial.qld.gov.au; Paul Coyne  
**Subject:** Seeking your urgent intervention to protect the Scenic Rim from an open cut coal mine

Dear Premier Newman,

With reference to a letter sent to your office from Paul Coyne on behalf of the Croftby community group, I would like to provide additional information from an affected landholders perspective.

My name is [REDACTED] and I am the owner of [REDACTED] in Croftby. This land holding lies within the Mineral Development Licence 138 currently held indirectly by Allegiance Coal. [REDACTED] forms part of my 1200 acre farming enterprise that I live and work on day to day.

My family settled this area [REDACTED] and have been responsibly managing the use of this land since that time. My sole livelihood is derived from this land. For the past 30 years I have been responsible for the sustainable methods of growing small crops, fodder crops and breeding quality beef cattle.

The small fertile valley, that my property lies within, has been identified by the DPI in a report prepared in 2001 as one of the three most fertile areas for primary production in the country. In addition to the high fertility content of our soils in this valley, the ground-water is that of good quality, significant quantities with the aquifers very close to the surface. This important resource (under careful management) has supported us through extended periods of severe drought where others areas in the district have suffered. The proposed coal mine is earmarked to straddle two main tributaries of the Teviot Brook – the main catchment area for Wyaralong Dam – part of the South East water grid infrastructure. As comprehensive short and long term impacts of coal mining and coal seam gas extraction on water systems are yet to be fully realized we are deeply concerned for the future of our local water and indeed, the broader Clarence–Moreton Basin.

This immediate area of Croftby has been recognized since settlement for it's aesthetic beauty. It is indeed the most frequented tourist route of the Scenic Rim. The significance of protecting the National Heritage listed 'Minto Crags' Ring Dyke and the adjacent Endangered Regional 'Ecosystem' of 'Minto Swamp', both of which lie within my property, I believe is paramount.

[REDACTED]  
[REDACTED] I am deeply concerned for the health of not only my children but that of my

grandchildren. These concerns are directly linked to the methods by which this coal, if the licence was to be granted, is extracted.

Colin Randall, Managing Director of Allegiance Coal, outlined to our community at a meeting on the 15<sup>th</sup> June 2012, that new extraction technology, developed by himself, would be used instead of traditional 'blast and dig' methods. He indicated to those of us at the meeting that this new technology will produce significantly higher levels of dust and pollutants than that of traditional methods.

My wishes and vision align directly with the Scenic Rim Community Plan, which after extensive community consultation outlines our needs for a strong economy based on our rural and tourism industries. We need to protect our agricultural land from fragmentation and development. We must prioritise the Scenic Rim's highly valued lifestyle and landscape.

I ask that you urgently enact your election promise to protect the Scenic Rim from mining and coal seam gas exploration.

Yours sincerely

[Redacted signature block]

Ph: [Redacted phone number]

[Redacted email address] [.com.au](mailto:[Redacted email address].com.au)

Released under RTI - DRG



28

21 June 2012

The Hon Campbell Newman MP  
Premier  
Parliament House  
Cnr George and Alice Sts  
Brisbane QLD 4000

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Dear Premier

**Re: Rich Land, Wasteland**

I have recently read the enclosed book - Rich Land, Wasteland by Sharyn Munro. I was truly shocked to learn what is happening throughout Australia, with coal and coal seam gas mining rapidly expanding, without adequate consideration of the long-term consequences for the affected communities and for future agricultural productivity and water security.

Ms Munro exposes the short-sightedness of the current policy of allowing virtually unfettered access by (often foreign owned) coal companies because it earns good export income — for the moment. But at what cost to the long-term interests of our nation and our people? Our health (physical and mental), our financial security, our environment, our ability to feed ourselves (and others)?

It seems generally accepted that water and food will, in the not so distant future, be like gold. But will we have clean water left after the ravages of the current coal free-for-all? Will we still have productive agricultural land, with communities to live and work it?

All politicians, decision-makers and opinion leaders need to pause (I know it's hard but it must be done!), take stock and think hard about whether current policies and regulations (or lack thereof) are in Australia's best interests.

I urge you to read this book and ask yourself if future generations of Australians will thank you for how you responded. When you've finished reading the book, please pass it on to someone you feel may benefit from reading it.

Yours sincerely

s.73 Personal Information

@bigpond.com

WAMBO CATTLE COMPANY



Campbell

The C&H industry is a real  
problem out our way - mainly  
economically.

I have enclosed the following  
for you to give you & your  
adviser a personal assessment.

Regards

Max

Wambo Cattle Company Pty Limited

ABN: 92 058 718 326

maxw@maxwinders.com.au E

07 3002 5500 P

07 3002 5588 F

LEVEL 15, 241 ADELAIDE ST

/ GPO BOX 3137

BRISBANE QLD 4001

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

Released under RTI - DPC

# WAMBO CATTLE COMPANY

L12512/MFW/WCC

14<sup>th</sup> June, 2012



Wambo Cattle Company Pty Limited  
ABN: 92 058 718 326

The Chief Executive  
Attention: EIS Coordinator (Surat Gas Project)  
Statewide Environmental Assessments  
Department of Environment & Resource Management  
GPO Box 2454  
Level 8, 400 George Street  
BRISBANE QLD 4001

Per Email: [eis@derm.qld.gov.au](mailto:eis@derm.qld.gov.au)

## Re: Comments on EIS

These comments are provided on the following topics addressed in the EIS which we know impact on our business of cattle lotfeeding and backgrounding in the NW corner of Arrow's Daandine gas field:

- Potential impact on groundwater resources
- Treatment of CSG Water
- Beneficial Re-use of CSG Water
- Disposal of Salts
- Routing of Surat-Gladstone Gas Pipeline
- Socio-economic Impacts

## Potential Impact on Groundwater Resources

It is considered that the treatment of this issue in the EIS has been carried out quite professionally and that the information presented in the EIS and in Appendix G is sufficient to demonstrate that our property is located such that Arrow will be required to "make good" the loss of access to groundwater in the Walloons, the Kumbarrilla Beds, the Huttons and the Precipice.

The extent to which Arrow will be required to do this is a matter which should be taken into consideration when conditioning any approval, as Arrow's existing water extraction from the Daandine and Kogan North gas fields has already caused our bore water levels to be lowered beyond the 5 metre trigger value and this is likely to continue.

In addition, the QGC/Origin David Block extends over the balance of our properties and their proposed imminent water extraction will further exacerbate our problem.

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Knowing which company is responsible for making good in such circumstances is one of the problems of the current regulatory framework and we look forward to seeing how this issue can be resolved either in approval conditions or by further detailing of the regulatory framework.

We are also concerned about the validation of the cumulative groundwater model and about how the detail of the monitoring bore network can be applied meaningfully to our situation.

The above are issues that should be included in the topics to be addressed in a Supplementary EIS.

In so doing, the Supplementary EIS should have regard to matters addressed in the current government's policies and the manner in which these are likely to be administered by the Gasfields Land & Water Commission.

#### **Treatment of CSG Water**

The proposed treatment of CSG water in integrated processing facilities by reverse osmosis and disposal of the brine into huge brine storage dams may be to Arrow standard but is not sustainable in view of current technological advances and in view of the community's expectations with regard to protecting our land and water.

This is an issue that needs to be completely reviewed in a Supplementary EIS, having regard to what is already possible to achieve with current technology and what new processes are more water efficient and can reduce the amount of brine that needs to be sustainably disposed of or re-used.

It is considered that the Coordinator-General should review the current government's policies in this regard and give some direction to the manner in which this should be treated in the EIS.

#### **Beneficial Re-use of CSG Water**

It is unfortunate that Arrow regards re-injection as its preferred option when an economic analysis showing the benefits to the community of beneficial re-use would show that this is more likely to be the community's preferred outcome for coal seam water management.

The proposed system of management of coal seam water as outlined in the EIS should be rejected.



It is recommended that the Supplementary EIS should include a detailed review of the economic issues involved in both re-injection and beneficial re-use and have regard to current and future government policies and the proposed operations of the Gasfields Land & Water Commission.

### **Disposal of Salts**

The proposal to store brine in large dams, which would effectively be evaporation ponds, should be rejected and a more-sustainable proposal detailed and offered in the Supplementary EIS.

### **Routing of Surat Gladstone Gas Pipeline**

It would appear that the route proposed for this pipeline, as shown in the EIS, is proposed to pass quite close to the most-used part of our feedlot, as was previously proposed in an earlier application by Arrow to the Queensland Government.

We strenuously opposed that route, principally because of safety reasons but also because it unreasonably affected our future business and that there were other options along public lands. These objections were detailed in a letter from us to a former Coordinator General.

Arrow made several attempts to re-negotiate this route but we were unable to reach agreement and we required a quantitative risk assessment to be undertaken before proceeding any further.

Arrow subsequently approached us with a proposal to route the gas pipeline well to the south of our feedlot and clear of future property development proposals. We negotiated a route in this area that suited our company as well as QGC's well and gathering line layout and we believed that this was likely to be acceptable to Arrow.

Unfortunately it would appear that this is now not the case.

We believe that we can still substantiate the case originally sent to the Coordinator-General.

It is requested that the company be told the route through our property, as shown in the EIS, is not available and that the newer route be included in the Supplementary EIS.

### **Socio-economic Impacts**

The real function of an EIS in this situation is to identify the adverse socio-economic impacts, where they are occurring and what might be done to at least preserve the socio-economic values of the existing community.

The EIS correctly identifies the following:

- the resident population has been growing more slowly than the state average;
- skilled workers are in short supply and there is competition for them;

- wages are below the state average but are catching up;
- the region's transport and telecommunications structure requires upgrading;
- agriculture ...is facing wage competition from the growing mining and energy sectors;
- Arrow's project will create a demand for 500 full-time employees;
- it could increase wages by 0.5%;
- the most significant impact occurs in the demand for technicians and tradesmen;
- the project will place upward demand for accommodation and on the costs thereof;
- the negative impacts include deepening the existing skills shortage and competition for labour, the availability and cost of residential accommodation and the demands on infrastructure.

The EIS does not identify how these will be mitigated.

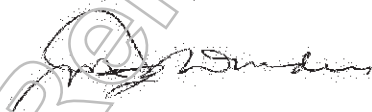
It is requested that the Supplementary EIS provides guidance as to how Arrow would contribute to specific improvements to local housing and infrastructure within the gas fields to offset these impacts – including contributions to rural power and water supply systems and to provide large lot residential developments suitable for a rurality-based workforce rather than small lots in towns.

It is suggested also, to minimise impacts on the most sensitive part of the community, that any Conduct and Compensation Agreements entered into by the Company with landholders should include provisions to completely offset these impacts on landholders, their businesses, their lifestyles, property values and financial security.

It would be hoped that Arrow would offer a more-gas fields focussed socio-economic package than the \$ 150 million package recently announced by QGC.

Please contact me if further details would assist. I would be pleased to take part in any further consultation required during the production of the Supplementary EIS.

Yours sincerely,



M.F. WINDERS

Expenditure	YES	NO
WAMBO CATTLE COMPANY		
Date Received in QWC		
- 2 JUL 2012		

L13012/MFW/WCC  
19<sup>th</sup> June, 2012



Wambo Cattle Company Pty Limited  
ABN: 92 058 718 326

Queensland Water Commission  
PO Box 15087  
CITY EAST QLD 4002

Per email: [SuratUWIR@qwc.qld.gov.au](mailto:SuratUWIR@qwc.qld.gov.au)

## COMMENTS UPON DRAFT UNDERGROUND WATER IMPACT REPORT SURAT CUMULATIVE MANAGEMENT AREA

### Background

This submission is based upon the experiences of a cattle lot-feeder in obtaining sufficient and suitable groundwater supplies from the Eastern Surat Basin of the Great Artesian Basin, as previously and currently managed by the Queensland Government under the *Water Resources (Great Artesian Basin) Plan*.

Access to most of the aquifers has been denied to the intensive livestock industries because of perceived over-allocation of the resources, as then understood by the relevant government agencies. This has been a significant impediment to the development of these industries in a region otherwise found quite suitable for such uses.

These impediments might be contrasted with the Queensland Government's granting of the water rights to the Walloons formation to coal seam gas producers under the most recent version of the *Plan*.

Much of the water contained in the Walloons is of a quality that either could be used for intensive livestock watering either directly or indirectly, by dilution with surface water supplies or by partial desalination.

The author of this submission is experienced in the use of CSG water by dilution and is satisfied that this is a sustainable use of the water. The author has also been involved in testing ion exchange processes for partial or essentially complete desalination and considers that such processes could be viable in treating CSG water for beneficial re-use in the intensive livestock industries.

The author's company has a Water Deed to take water from Arrow's Daandine gas field for such purposes on an as-available/as-required basis.

The company's lands also extend westward from the Daandine gas field into the David Block held by QGC/Origin and, as such, the company expects the right to negotiate a beneficial use agreement as part of reaching a land access agreement with this tenure holder.

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To supplement its surface water supplies, the company obtained livestock intensive licences and drilled bores into the Precipice and upper Walloons. These were subsequently downgraded to domestic and livestock intensive against the company's wishes. Access to the Huttons was earlier denied in favour of Wilkie Coal who, it is understood, no longer use that bore.

Darling Downs Power Station is understood to have a bore into the Walloons for which the supply has now been augmented by pumping and piping from the above Wilkie Coal bore. Two other power stations at Braemar have access to CSG water from Arrow, while Arrow supplies Wilkie Coal with untreated water from the Kogan North gas field.

Thus there is a number of existing groundwater supplies in the Braemar area which are likely to be impacted upon by further gas extraction but which could be augmented by treated CSG water from local gas-fields.

The draft *Underground Water Impact Study*, through identifying those areas where the drawdown is already excessive and those where it would be excessive in the longer term has, in part, shown the Braemar area to be one that is already impacted upon and will be further impacted upon. However the detail provided is superficial and the report offers no advice as to the extent to which "making good" can be or could be realised.

It was expected that the draft *Underground Water Impact Report* would have contained sufficient of the information necessary for the author's company and the other landholders in this area to negotiate with Arrow Energy and QGC/Origin with regard to their making good the obvious depletion in the local groundwater resource that has and will continue to occur as the gas production area expands and water extraction rates increase.

The draft report, as it stands, does not of itself provide this basis and it is submitted that the final report should be upgraded to a stand-alone document – not just a summary addressing the empirical regulatory framework of a past government.

As lot-feeders, we are also concerned that the Surat Basin's irrigation water supplies will be reduced, increasing the cost of grain, hay, silage and cotton seed to our operation and to other value-adding industries.

The report's predicted impacts on the Condamine Alluvials seem to be substantially lower than those predicted by the quite-experienced hydrogeologist, Mr John Hillier. This adds to our concern that the report is based on a preliminary version of a model that has not been properly validated with respect to this valuable groundwater resource.

Landholders expect the Commission's water management strategy to be guided by the results of a more-accurate model that has been validated against a wider range of existing groundwater level data than appears to be the case at present.

There is an expectation that such a model would be used in a positive management sense rather than to just identify locations for monitoring bores to provide data for a better model three years later.



This submission supports the upgrading and further use of the QWC model to identify those areas where "making good" the lost water resource can be achieved by upgrading or replacing existing bores and those areas where this would not be feasible.

It also supports the further development of the model so that it can be used to re-assess the *Water Resource (Great Artesian Basin) Plan* and provide information that would enable the currently untapped resources of the Great Artesian Basin to be sustainably released.

### Comments on Methodology

Basically, the methodology is at an industry-practice level, suitable for a first attempt at developing a cumulative impact model from information supplied by the various gas companies from their individual modelling and the information held on the two borehole and well databases.

However, it is understood that the model is so large that it takes days to run and that runs are quite expensive, inhibiting its future use for more proactive water resource planning purposes.

Additionally, with a 1.5km x 1.5km grid size and being required to cover such a vast surface area, it is difficult to see how this model could be used to predict impacts on bores and productive aquifers with the certainty required to demonstrate the need for gas companies to make good landholders' bores as the industry's footprint expands.

It would appear that the model is only currently validated to an accuracy that sets broad limits to the sphere of impact. However it should be useful in providing boundary conditions for smaller sub-models – of localities where the hydrogeological properties within the QWC model's cells may be better defined and where the locations of the coal seams and the productive aquifers should have been properly identified by drilling and seismic investigations.

The Daandine sub-model is a case in point. This is an area which has been extensively drilled and the water production rates should be well known. Yet there are only a limited number of monitoring bores within this gas field and even less beyond its boundaries. The final report needs to include a separate chapter on the Daandine sub-model, its validation and the information that has been conveyed from it to the rest of the model.

It is also of concern that significant fault lines have not been shown, even though their relevance is noted in Section 4.5 and in Chapter 7. Figure 3-4 is too general to be of any real value to a landholder.

Figure 4-4 is also of quite limited value because of its generality.

Many more actual cross sections extending into existing and proposed gas fields would enable a potentially affected landholder to become better informed and for regional communities to be shown what their groundwater resource looks like and what is likely to happen as CSG water is extracted. Such local cross sections would also be available to assist the QWC in explaining situations such as the gas bubbling in the Condamine downstream of Chinchilla.

Appendix D would have been relevant had it addressed a real rather than a generic situation, with water being extracted from the Walloons in several different locations depending on the basin and the unconfined aquifers above, rather than the non-specific aquifer case depicted.

### **Comments on Presentation of Results**

Presenting only the extent of the impacts in plan form, as in Figure 6-4, Figure 6-5 and in the figures of Appendix F, is of little value to a landholder or a community representative.

It is the vertical profile that is important to assessing impacts on the success and the yield of productive bores. Advice that the 5 metre drawdown criterion is exceeded at and beyond the site of a bore of concern is of little value and conveys very little information when seeking "make good" provisions.

The nature of hydrogeological models is such that the predictions obtained by interpreting the results of current model runs can be output as profiles on long sections through gas fields extending beyond the boundaries of the gas fields.

These profiles could show current and projected hydrostatic pressures in the various productive aquifers, as well as in the Walloons.

Such sections and profiles would provide a landholder with a real reference for comparison with landholders' bore logs and the depths at which pumps have been placed in those bores.

### **Proposed Future Use of the Model**

The report appears to assume that the results produced on a 1.5km x 1.5 km grid will be sufficient to allow the baseline assessments of private bores to be extrapolated into the longer term to assist in structuring agreements between tenure holders and landholders.

How is this supposed to happen? Can a landholder submit an inquiry to the Commission and be given a long section through the model linking the landholders' bores to the gas fields? Will this long section, in addition to showing the hydrostatic pressures in the aquifers, also show the vertical extent of the aquifers that the landholder is using or would like the opportunity to use?

Being provided with this information would put the landholder on an equal footing with the tenure holder in negotiating make good agreements where, currently, the tenure holder has access to all of the information.

Assisted access to data from quite complex flood models held by local authorities provides an example of how administering agencies can assist in resolving conflicts between competing parties. It is submitted that the Commission should consider a similar system for providing access to its Surat Basin model in the future.

Another means of assisting a landholder to negotiate with a tenure holder would be for the Commission to provide the landholder's hydrogeologist with a submodel of the area of interest and with appropriate boundary conditions.

Access to such a sub-model would enable the hydrogeologist to cost-effectively model various make good scenarios on another computer to put to the tenure holder for making good the impact on local groundwater resources.

Local authorities frequently make sub-models of their overall flood models, complete with sub-model boundary conditions available to accredited consultants as a basis for reaching agreement on flood-plain planning issues and the system works well.

Surface water planning models such as IQQM have also been used cooperatively to resolve surface water allocation and environmental flow issues under similar arrangements.

There should not be any impediment for the Surat Basin model to be similarly shared.

#### **Further Use of the Model in Resource Allocation**

Effectively, the draft report of May 2012 simply provides a basis for establishing a network of monitoring bores and providing a mechanism for government to regulate the "making good" of "existing bores" and spring flows by CSG companies extracting water from within the Cumulative Management Area (CMA) of the Surat and Bowen Basins.

It is hoped that all the good science that has gone into its development will not be wasted by just revisiting the report every three years for this purely regulatory function.

The right to extract huge volumes of water from the GAB was given to gas companies most recently under the *Petroleum and Gas (Production and Safety) Act 2004* "because the gas and the water are intimately affected".

The UIWR forms part of the regulatory framework for managing the impacts of this gift to the gas industry.

Unfortunately for the wider community, the UWIR only provides a means of predicting when a gas company may be required to "make good" to an existing bore licence holder if the standing water level in that bore falls by more than 2 metres in an unconsolidated aquifer like the Condamine Alluvials or by more than 5 metres in a consolidated aquifer such as the Springbok, Walloons, Huttons or Precipice.

"Existing water bores", as defined in the *Water Resource (Great Artesian Basin) Plan 2006*, do not include ... "a water bore that allows taking artesian or sub-artesian water only for stock or domestic purposes" and it is not apparent how the community's rights in this regard will be protected under the current regulatory framework which has effectively replaced the original *Plan*.

Apparently the government which introduced this regulatory framework was not interested in the rights of landholders to viably access a water resource of much greater magnitude than that which was awarded to existing and prospective licensed bore holders under the above *Water Resource Plan*.

The UWIR identifies that 85,000 megalitres per year of groundwater, out of a total of 215,000 megalitres per year in the CMA, is accessed from the GAB aquifers by

agriculture, industry, urban, stock and domestic purposes, while a further 55,000 megalitres per year is extracted from the Condamine Alluvium, principally for agriculture.

The current rate of extraction by the gas industry from the GAB is 18,000 megalitres per year – about one-fifth of the current total – but is predicted to increase to 100,000 to 125,000 megalitres per year, i.e. greater than the current take from all of the GAB aquifers.

Yet the “outcomes for sustainable management of water” of the *Water Resource (Great Artesian Basin) Plan 2006* only provided a “general reserve” in the CMA of approximately 11,000 megalitres per year and a “State reserve” for local government and projects of state significance of 10,000 megalitres per year.

It is little wonder then that the modelling carried out for the SUWIR predicts huge drawdowns in the Walloons (150 metres within the gas fields) and lesser but still significant falls in the adjoining upper (Springbok) and lower (Hutton) aquifers.

A simpler model would have shown this at the time the regulatory framework was drafted and a more sustainable solution to the problem could have been explored before a valuable resource was reduced to brine in evaporation ponds.

What has now been identified is that the 150 metre drop in the Walloons will render many existing bores economically useless and there are 2054 of these into the Walloons and a further 2828 bores into the adjacent Hutton and Marburg Sandstones.

It is suggested that, given the size of the resource about to be wasted by the gas industry, the government should ensure that the focus on future groundwater modelling is directed towards developing a business plan for managing the treatment of CSG water for beneficial re-use in the wider Surat Basin community, as well as to the licensees of existing bores.

This activity would add weight to the SunWater proposal to link a future Nathan Dam to Dalby via a water grid, into which treated coal seam gas supply could be distributed to urban, rural, agricultural and industrial uses throughout the Surat Basin, rather than to re-inject it into non-productive aquifers.

This would also redress the current loss of 11,000 megalitres per year to the General Reserve and a further 10,000 megalitres per year supposedly provided in the State Reserve.

It would provide regional councils with a business plan for securing urban and rural water supplies throughout those parts of the Surat Basin which do not have reliable water supplies and to put into place an infrastructure which could be used, post-gas extraction, to sustainably use the vast resources of the Great Artesian Basin which the capping of artesian bores sought to protect.

## Conclusions

The *Draft Underground Water Impact Report* of May 2012 describes a basis for tenure holders to identify where they may need to make good some bores in the future as the gas fields expand, as required by the *Water Act 2000*.



However, the manner in which the results of the cumulative impact model have been presented in the *Draft Report* are of little value to a potentially affected landholder, because they do not show the impacts in the vertical plane enabling impacts to be interpreted in practical terms.

It is suggested, as a first step, that landholders or their representatives should be able to obtain relevant cross sections through the model, together with some advisory notes on their interpretation. This would provide landholders with factual information to discuss with tenure holders concerning "making good", either now or in the future.

Provision should also be made for appropriately-qualified consultants to obtain sub-models with boundary conditions relevant to their client's bores, so that the sub-models can be run cost-effectively to test various "make good" options for subsequent discussion with the tenure holder.

At present there is some concern that the model grid size is too large and that it is inadequately validated.

A revised report should be submitted showing how the Daandine sub-model was validated and how its results may be relevant to the validity of the overall model.

The revised report should also show how data from existing monitoring bores fits the model.


It is submitted that revising the model every three years misinterprets the concern by landholders that an updated model is needed as soon as is practicable if landholders and their communities are to be satisfied with the Commission's management of the gas industry in this respect.

The upgraded model could also be used to revise the *Water Resources (Great Artesian Basin) Plan* and *Resource Operations Plan* now that the potential recharge rates and yields of the aquifers in this quite important part of the Great Artesian Basin can be modelled and monitored.

The author would be pleased to discuss aspects of the above at the Commission's convenience.

My office is in Brisbane and I can be contacted by phone on 3002 5500.

Yours sincerely,



M.F. WINDERS

**Sarah Partosh**

---

**From:** [REDACTED]@gmail.com>  
**Sent:** Wednesday, 4 July 2012 2:40 PM  
**To:** The Premier  
**Subject:** RE: Calamity caused by coal seam gas development and koala legislation in south east Queensland.

[REDACTED]

Postal Address

[REDACTED]

Property Address

[REDACTED]

PH [REDACTED]

FAX [REDACTED]

Email : [REDACTED]@gmail.com

Attention: Premier Campbell Newman

Postal Address

PO Box 15185

City East Q 4002

Email [thepremier@premiers.qld.gov.au](mailto:thepremier@premiers.qld.gov.au)

Dear Premier,

RE: Calamity caused by coal seam gas development and koala legislation in south east Queensland.

I have written today again to Andrew Powell – State member for Glasshouse and Minister for Environment and Heritage Protection requesting a round table conference as there is no development taking place of home sites or industrial land. The destruction caused by the greenies and past premier Anna Bligh and it must be rectified without delay.

I shall keep you informed.

Kind regards



p.s There are no koalas in Warner, Strathpine, Brendale, or Bray Park but there are 200,000 cars travelling through.

Released under RTI - DPC

Dear Campbell Newman,

Digitised?	YES	NO
If digitised this is now an ELECTRONIC DOCUMENT Enter ALL DATA IN THIS		
9 JUL 2011	Date received in DPC	
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I am from Iowa in the United States visiting  
Australia for volunteer  
Mountains. I have only been here for a week, but I  
am absolutely amazed by the beauty of the rainforest and  
every little plant and animal in it. I know that mining  
wouldn't affect me directly, but I have met so many people  
already that are very passionate about the forests and  
they are doing literally everything that they can to preserve  
it. Coal & Coal Seam Gas Mining are terrible for the  
environment and I think you and everybody else knows  
it.

In the future my goals are to run campaigns  
that stop deforestation & mining. If things aren't  
done to stop it there will be no more beautiful  
forests for the animals & plants to live in and  
that is absolutely disgusting. Please consider my  
thoughts before tearing up the little forest areas that  
are left

Sincerely,

s.73 Personal Information



**Sarah Partosh**

---

**From:** The Premier  
**Sent:** Wednesday, 11 July 2012 7:44 AM  
**To:** The Premier  
**Subject:** Mining

**Importance:** High

Subject: Mining  
Title: Mr  
First Name: [REDACTED]  
Family Name: [REDACTED]  
Email: [REDACTED]@bigpond.com

-----  
Address: [REDACTED]  
Town: [REDACTED]  
State: [REDACTED]  
Postcode: [REDACTED]  
Email: [REDACTED]@bigpond.com  
-----

Comment:

Could you please get your health Minister to go out himself and check out the claims about Coal Seam gas extraction and health issues associated with this. It seems to me the 'Can Do' approach to fixing things, is not happening here. I thing you want to nip this in the bud, one way or the other. It's starting to look like you are sitting on the fence here like the previous Government

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**Sarah Partosh**

---

**From:** Premier <premier@ministerial.qld.gov.au>  
**Sent:** Thursday, 12 July 2012 8:36 AM  
**To:** The Premier  
**Subject:** FW: Concerns / your opinions

Please match with previous and acknowledge both emails.

Regards

**Bec McCoan** | Administrative Officer  
Office of The Hon. Campbell Newman MP | Premier of Queensland  
Bec.McCoan@ministerial.qld.gov.au  
Phone: 322 44363 | Mobile: 0401 525 780  
Level 15, Executive Building | 100 George Street | Brisbane | QLD 4000

---

**From:** [s.73 Personal Information]@bigpond.com]  
**Sent:** Thursday, 12 July 2012 12:48 AM  
**To:** Premier  
**Subject:** Concerns / your opinions



Dear Mr Newman,

As yet, I have not received a response, not even an acknowledgement of receipt, from your office, regarding my last email of 21 June, 2012.

In addition to this, would you please let me know your stand on two other issues that I feel strongly about.

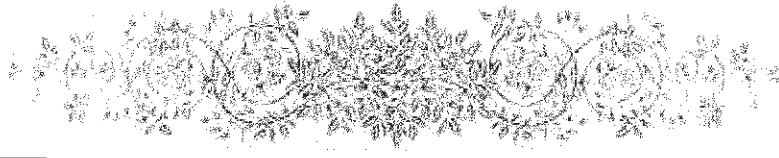
1. Coal seam gas mining
2. Turtle and dugong hunting ban and the apparent lack of consultation with traditional inhabitants.

It concerns me when governments appear to be taking fast action on issues without consultation with those at the proverbial coal face and in some cases, ignoring advice given from independent enquiries, to the detriment of our land.

I look forward to hearing from you.

Sincerely,

[Redacted signature]



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**Sarah Partosh**

---

**From:** Premiers Master  
**Sent:** Thursday, 12 July 2012 2:55 PM  
**To:** The Premier  
**Subject:** FW: Coal Seam Gas

Daniel

App Team, Department of the Premier and Cabinet  
+61 7 303 30608

---

**From:** [REDACTED] s.73 Personal Information [REDACTED]@bigpond.com]  
**Sent:** Thursday, 12 July 2012 11:55 AM  
**To:** health@ministerial.qld.gov.au  
**Cc:** premiers.master@premiers.qld.gov.au.  
**Subject:** Coal Seam Gas

Dear Sir

I am reading with increasing alarm about the possible health affects of GSG on people.

I would think it would be in your Government's interest to investigate these health concerns fully.

The last thing the people of Queensland want is big business destroying people's lives, which is what is apparently happening already.

Much more planning and consideration for our people and environment needs to be undertake in our State with regarding to mining. Sure some employment is provided and of course the Government gets paid off, but at what cost.

Please listen to the voting public regarding this very important matter.

Regards

[REDACTED]



**Sarah Partosh**

---

**From:** s.73 Personal Information [redacted]@optusnet.com.au>  
**Sent:** Sunday, 15 July 2012 8:55 PM  
**To:** The Premier  
**Subject:** SCENIC RIM

Dear Mr Premier, Mr Cambell Newman,

I live in the area where this coal mining and coal seem gas is trying to become a income revenue for themselves. As this area has so much heritage connected significance, I do not understand why the Government would let it happen. I have always been an Liberal Party Supporter. In the last elections, you have stated that the Scenic Rim would not have the coal seem gas, plus the open cut mine at Minto Crage, (which is a heritage listed area - I have seen pelicans in the swamp lands around the mountain. Also, I do not understand how a water-way can be changed to support a mining company - ie. there is a water-way that flows through the area where the mining company wants to do its thing.) I do not understand how you could let this happen to this area. I did see and hear on Q&A, Barnaby Joyce saying that the Scenic Rim was exempt from coal seem gas and mining. Also, as I understand it, this was an election promise. Please help me, as I do not want to see this area ruined by mining, and its consequences!

Thanking you,

[redacted] (Scenic Rim resident.)

Released under RTI 2008

**Sarah Partosh**

---

**From:** [Redacted] s.73 Personal Information [Redacted]@gmail.com>  
**Sent:** Monday, 16 July 2012 4:25 PM  
**To:** The Premier  
**Subject:** Coal Seam Gas

[Redacted]

Postal Address

[Redacted]

Property Address

[Redacted]

Email : [Redacted]

Attention: Premier Campbell Newman

Postal Address

PO Box 15185

City East Q 4002

Email [thepremier@premiers.qld.gov.au](mailto:thepremier@premiers.qld.gov.au)

Dear Premier,

Congratulations on your speech last Friday in which you mentioned that you were going to arrange for the compatibility of coal seam gas developers and farmers.

The destruction caused by coal seam gas borers is unforgivable as they destroy all the properties in which they bore by ruining the country surrounding and underground water streams. Members of Parliament that I have spoken to don't know much about underground streams but the proven story is that Eli Creek Frazer Island (which you cannot cross at high tide) originates at Roma Queensland and there are probably ten underground streams that outlet at that island.

In past years I have with the aid of s.73 Personal Information divined and bored for water 50 times around Brisbane metropolitan area. Although most of the boring discovered blackish water which contained aluminium or iron content and were unusable, several were perfect for drinking.

This emphasises the problem that the coal seam gas drillers and borers have with the aluminium, iron and salty water. It is stated by them that it will be stored where and how? Also they state that they will repair the underground streams and replenish with pure drinking water that is not possible and is a dangerous irresponsible statement.

Alan Jones radio announcer for 3GB has held two meetings and filmed by television. One at Oakey and one at Southbank each was broadcasted for about four hours and those meetings would be worth studying because he and Drew Hutton have campaigned correctly for the excepting strategy of "Lock the Gate. It should be noted that no farm could exist without underground water supply. It is said that you can construct a dam but they pump dry.

As a land developer I cannot and my company cannot acquire land for development because I run the risk of spending hundreds of thousands of dollars with councils preparing the correct zoning and engineering plans only to find that the coal seam gas raiders just move in and take over the land for twenty odd years and this cannot be corrected.

ALL LAND DEVELOPMENTS FOR HOUSING AND INDUSTRIAL LOTS HAVE STOPPED FOR THAT REASON.

This means that all trades associated such as Town Planners, Engineers, Builders, Plumbers, Council workers are unemployed.

I am and my family cannot attempt to look for land to develop anymore and ask that you take these remarks into consideration when you deal with the coal seam gas disaster.

Kind regards

[Redacted Signature]

**Sarah Partosh**

---

**From:** s.73 Personal Information [redacted]@gmail.com>  
**Sent:** Thursday, 19 July 2012 3:20 PM  
**To:** The Premier; gasfieldcommunitysupportgroup@hotmail.com  
**Subject:** Health impacts and HYDROGEN SULPHIDE poisoning

[redacted]

"Right at this point i am shaking with rage, the bore was cracked open the other day displaying Hydrogen Sulphide at 219ppm, some while later with the bore sealed it displayed H2S at around 20 to 40 ppm several meters away from the bore. The Qld Government Officials stated there was no H2S present on both times they tested the bore, both times an independant callibrated meter displayed high levels of H2S. Today my daughter in law recieved a phone call from the Toowoomba Heath Services to say Jace has epilepsy, so how much corruption or incompetence can any parent/grandparent tollerate, what the fk is going on????????????????"?": This may be a direct reaction to H2S, see attached sheet, or not, but all the other symptoms are consistent with H2S toxicity. Where do you go, what do you do, how is this tollerated. I'm emailing candrill and joolia, enough is far more than enough. What fkn price are these governments prepared to allow us all to pay."

It relates to this link.

<http://www.public.health.wa.gov.au/cproot/2652/2/11548%20hydrogen%20sulphide%20and%20public%20health.pdf>

It would appear your gas inspectorate are an incompetent group at best, it would appear your health department are an incompetent group led by a quite incompetent minister at best. Your health department stated that there is no information on hydrogen sulphide, maybe you could direct them to the above WA link.

Now your LNG Enforcement Unit states today that they have no right to the information about the fracked well, they consistently ask us for the date, why would that be, are they the Enforcement Unit, does QGC not have to report such facts to the Enforcement Unit. How does that work, Queenslanders are paying for Enforcement of safety and regulatory supervision.

We believe Coal Seam Gas is unlawful as it is causing HARM, INJURY and LOSS to those living human beings around it, and I expect you to acknowledge this statement.

[redacted]

ph [redacted]  
[redacted]@gmail.com



**Sarah Partosh**

---

**From:** [REDACTED]@optusnet.com.au  
**Sent:** Thursday, 19 July 2012 5:22 PM  
**To:** The Premier  
**Subject:** Re: SCENIC RIM

The Honourable Campbell Newman MP'

Ministerial Officer  
Office of the Premier

Dear Sir,  
Thank you for acknowledging my email re CSG and mining worries.

My postal address is: [REDACTED]

On 16/07/2012 1:31 PM, The Premier wrote:

>  
> Thank you for your email to the Honourable Campbell Newman MP, Premier of Queensland. We confirm receipt of your message. If you would like to provide an opportunity for the Premier to respond, please email back with your postal address and your correspondence will be actioned as appropriate. We appreciate the time you have taken to contact our office.

>  
> Ministerial Officer  
> Office of the Premier  
> ☐ Please consider the environment before printing this email

> -----Original Message-----

> From: [REDACTED]@optusnet.com.au]  
> Sent: Sunday, 15 July 2012 8:55 PM  
> To: The Premier  
> Subject: SCENIC RIM

>  
> Dear Mr Premier, Mr Cambell Newman,  
> I live in the area where this coal mining and coal seem gas is trying  
> to become a income revenue for themselves. As this area has so much  
> heritage connected significance, I do not understand why the  
> Government would let it happen. I have always been an Liberal Party  
> Supporter. In the last elections, you have stated that the Scenic Rim  
> would not have the coal seem gas, plus the open cut mine at Minto  
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> swamp lands around the mountain. Also, I do not understand how a  
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> the Scenic Rim was exempt from coal seem gas and mining. Also, as I

> understand it, this was an election promise. Please help me, as I do  
> not want to see this area ruined by mining, and its consequences!  
> Thanking you,  
> [REDACTED] (Scenic Rim resident.)  
>  
> -----  
> -----  
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> No virus found in this message.  
> Checked by AVG - [www.avg.com](http://www.avg.com)  
> Version: 10.0.1390 / Virus Database: 2437/5134 - Release Date:  
> 07/15/12  
>  
>

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# SENATOR BARNABY JOYCE

Leader of The Nationals in the Senate  
Shadow Minister for Regional Development, Local Government and Water  
LNP Senator for Queensland

5<sup>th</sup> July 2012

Mr Campbell Newman MP  
Premier of Queensland  
Ashgrove Central  
221 Waterworks Road  
Ashgrove Qld 4060

ENTERED

18 JUL 2012

BY: 037/7/2012

Digitised?	YES	NO
If digitised, this is now an ELECTRONIC DOCUMENT. ENTER ALL DATA in TRIM.		
Related Records		
Date Received	20 JUL 2012	in DPC
File No:		
Tracking Folder No:		

Dear Mr Newman, *Campbell*

**Re: Condamine Alluvium Floodplain – Coal Seam Gas**

I write in relation to the issue of Coal Seam Gas on the Condamine Alluvium Floodplain west of Toowoomba.

Earlier this year, I visited the area and met with a number of landowners who are concerned with the prospect of Coal Seam Gas in their area.

As you are no doubt aware, these landowners are good people who have strong public support in the current battles that they are facing by reason of the Labor government selling mining leases under their properties.

This land is self evidently some of the best agricultural land in Queensland. s.73 Personal Information is a key stakeholder in this area. I would very much appreciate if you could make contact with him and some of the other local landowners in the Cecil Plains area. s.73 Personal Information advised me that some time ago you promised to make contact with them. Therefore, I am positive that s.73 Personal Information would greatly benefit from, and appreciate the opportunity to speak with you regarding the issues they are facing. s.73 Personal Information is available on s.73 Personal Information

I realise that this issue has many competing interests with that of farmers, mining, Treasury and the environment. Nonetheless, I feel it would be very beneficial for you to make contact with s.73 Personal Information and perhaps some of the other local landowners in the area.

Please feel free to contact me if you require any further information.

Kind Regards,

**Senator Barnaby Joyce**  
Shadow Minister for Regional Development, Local Government and Water  
Leader of the Nationals in the Senate  
LNP Senator for Queensland

## Sarah Partosh

---

**From:** Premier <premier@ministerial.qld.gov.au>  
**Sent:** Friday, 20 July 2012 4:20 PM  
**To:** The Premier  
**Subject:** FW: Moratorium on coal seam gas and liquid natural gas mining in Australia

**Bec McCoan** | Administrative Officer  
Office of The Hon. Campbell Newman MP | Premier of Queensland  
Bec.McCoan@ministerial.qld.gov.au  
Phone: 322 44363 | Mobile: 0401 525 780  
Level 15, Executive Building | 100 George Street | Brisbane | QLD 4000

**From:** premier@nsw.gov.au [mailto:premier@nsw.gov.au]  
**Sent:** Friday, 20 July 2012 7:48 AM  
**To:** Premier  
**Subject:** Moratorium on coal seam gas and liquid natural gas mining in Australia

Dear Minister

I object to the Federal and State governments' broad approval of coal seam gas exploration and LNG processing throughout our farm, conservation and water catchment lands, and demand all CSG drilling and extraction be suspended until these issues are resolved:

- Given the recent csg contamination incidents in the Queensland Surat Basin by Australia Pacific LNG, Cougar Energy in Kingaroy and AGL in the Hunter Valley NSW, it is clear the exploration companies are given far too much autonomy. Authority, access and cost reimbursement must be given to non-pecuniary environmental organisations to monitor the companies' gas exploration and extraction.

- A study of Environmental Assessments submitted to the Department of Planning reveal that many lots for core drilling and extraction are selected because they are already on disturbed land, and given the environmental nod because according to the exploration company paid assessor, no endangered fauna or flora reside on that lot/s. Yet the lots are not monitored for a full four-season cycle, nor wildlife migratory movement, nor the impact on the biodiversity, soil fertility & water purity on adjacent lots and 'downstream.' Full environment impact assessments need to be conducted by non-pecuniary, fully qualified professionals from a bank or pool of individuals who won't be penalised or blacklisted in the future for submitting a negative or pro-development assessment.

- Fines for environmental damage should exceed the potential profits generated by the deliberate or accidental damage, and should be fully enforced. (eg a \$100,000 fine for illegal land clearing will not dissuade a developer that is likely to make a \$2,000,000 profit on the degraded and likely to be rezoned land)

- State and Federal legislation, such as the NSW State Environmental Planning Policy 2007 should be amended to conserve and protect our water catchment, conservation lands and agriculture lands from mining, petroleum and gas exploration. It is incredibly short-sighted and avaricious for Mining and Petroleum exploration to have priority over the environment and agriculture. What good will billions of \$ profit to overseas companies such as Santos or Peabody



do for Australia if we can no longer trust our water supply, and have to import the bulk of our food to feed our nation?

-All Federal and State governments need to employ a system of transparency for the planning of degradation, exploration, extraction and impact on the land that we all own. The CSG industry as it stands in Australia may generate billions of dollars for large overseas companies for the next 30 years, but is likely to cost our country many billions of dollars in lost farm production, contaminated drinking water, health issues and biodiversity loss.

*Stop coal seam gas mining and preserve our precious water resources as uncontaminated and protected from filthy fossil fuel industry.*

Yours faithfully,

s.73 Personal Information

\_\_\_\_\_@hotmail.com

\_\_\_\_\_

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## Sarah Partosh

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**From:** Premier <premier@ministerial.qld.gov.au>  
**Sent:** Friday, 20 July 2012 4:20 PM  
**To:** The Premier  
**Subject:** FW: Moratorium on coal seam gas and liquid natural gas mining in Australia

**Bec McCoan** | Administrative Officer  
Office of The Hon. Campbell Newman MP | Premier of Queensland  
Bec.McCoan@ministerial.qld.gov.au  
Phone: 322 44363 | Mobile: 0401 525 780  
Level 15, Executive Building | 100 George Street | Brisbane | QLD 4000

**From:** premier@nsw.gov.au [mailto:premier@nsw.gov.au]  
**Sent:** Friday, 20 July 2012 8:53 AM  
**To:** Premier  
**Subject:** Moratorium on coal seam gas and liquid natural gas mining in Australia

Dear Minister

I object to the Federal and State governments' broad approval of coal seam gas exploration and LNG processing throughout our farm, conservation and water catchment lands, and demand all CSG drilling and extraction be suspended until these issues are resolved:

- Given the recent csg contamination incidents in the Queensland Surat Basin by Australia Pacific LNG, Cougar Energy in Kingaroy and AGL in the Hunter Valley NSW, it is clear the exploration companies are given far too much autonomy. Authority, access and cost reimbursement must be given to non-pecuniary environmental organisations to monitor the companies' gas exploration and extraction.
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do for Australia if we can no longer trust our water supply, and have to import the bulk of our food to feed our nation?

-All Federal and State governments need to employ a system of transparency for the planning of degradation, exploration, extraction and impact on the land that we all own. The CSG industry as it stands in Australia may generate billions of dollars for large overseas companies for the next 30 years, but is likely to cost our country many billions of dollars in lost farm production, contaminated drinking water , health issues and biodiversity loss.

Yours faithfully,

s.73 Personal Information

[REDACTED]  
[REDACTED]@gmail.com  
[REDACTED]

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## Sarah Partosh

---

**From:** Premier <premier@ministerial.qld.gov.au>  
**Sent:** Friday, 20 July 2012 4:19 PM  
**To:** The Premier  
**Subject:** FW: Moratorium on coal seam gas and liquid natural gas mining in Australia

**Bec McCoan** | Administrative Officer  
Office of The Hon. Campbell Newman MP | Premier of Queensland  
Bec.McCoan@ministerial.qld.gov.au  
Phone: 322 44363 | Mobile: 0401 525 780  
Level 15, Executive Building | 100 George Street | Brisbane | QLD 4000

**From:** premier@nsw.gov.au [mailto:premier@nsw.gov.au]  
**Sent:** Friday, 20 July 2012 9:08 AM  
**To:** Premier  
**Subject:** Moratorium on coal seam gas and liquid natural gas mining in Australia

Dear Minister

I object to the Federal and State governments' broad approval of coal seam gas exploration and LNG processing throughout our farm, conservation and water catchment lands, and demand all CSG drilling and extraction be suspended until these issues are resolved:

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do for Australia if we can no longer trust our water supply, and have to import the bulk of our food to feed our nation?

-All Federal and State governments need to employ a system of transparency for the planning of degradation, exploration, extraction and impact on the land that we all own. The CSG industry as it stands in Australia may generate billions of dollars for large overseas companies for the next 30 years, but is likely to cost our country many billions of dollars in lost farm production, contaminated drinking water, health issues and biodiversity loss.

Yours faithfully,

s.73 Personal Information

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## Sarah Partosh

---

**From:** Premier <premier@ministerial.qld.gov.au>  
**Sent:** Friday, 20 July 2012 4:19 PM  
**To:** The Premier  
**Subject:** FW: Moratorium on coal seam gas and liquid natural gas mining in Australia

**Bec McCoan** | Administrative Officer  
Office of The Hon. Campbell Newman MP | Premier of Queensland  
Bec.McCoan@ministerial.qld.gov.au  
Phone: 322 44363 | Mobile: 0401 525 780  
Level 15, Executive Building | 100 George Street | Brisbane | QLD 4000

**From:** premier@nsw.gov.au [mailto:premier@nsw.gov.au]  
**Sent:** Friday, 20 July 2012 11:16 AM  
**To:** Premier  
**Subject:** Moratorium on coal seam gas and liquid natural gas mining in Australia

Dear Minister

I object to the Federal and State governments' broad approval of coal seam gas exploration and LNG processing throughout our farm, conservation and water catchment lands, and demand all CSG drilling and extraction be suspended until these issues are resolved:

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*Ban all CSG Fracking of the underground. It is unsafe ,,causes health problems to human and animals and contaminates the water , air and environment*

Yours faithfully,

s.73 Personal Information

@bigpond.com

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## Sarah Partosh

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**From:** Premier <premier@ministerial.qld.gov.au>  
**Sent:** Friday, 20 July 2012 4:20 PM  
**To:** The Premier  
**Subject:** FW: Moratorium on coal seam gas and liquid natural gas mining in Australia

**Bec McCoan** | Administrative Officer  
Office of The Hon. Campbell Newman MP | Premier of Queensland  
Bec.McCoan@ministerial.qld.gov.au  
Phone: 322 44363 | Mobile: 0401 525 780  
Level 15, Executive Building | 100 George Street | Brisbane | QLD 4000

**From:** premier@nsw.gov.au [mailto:premier@nsw.gov.au]  
**Sent:** Friday, 20 July 2012 7:38 AM  
**To:** Premier  
**Subject:** Moratorium on coal seam gas and liquid natural gas mining in Australia

Dear Minister

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Yours faithfully,

s.73 Personal  
Information

@bigpond.com

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## Sarah Partosh

---

**From:** Premier <premier@ministerial.qld.gov.au>  
**Sent:** Friday, 20 July 2012 4:20 PM  
**To:** The Premier  
**Subject:** FW: Moratorium on coal seam gas and liquid natural gas mining in Australia

**Bec McCoan** | Administrative Officer  
Office of The Hon. Campbell Newman MP | Premier of Queensland  
Bec.McCoan@ministerial.qld.gov.au  
Phone: 322 44363 | Mobile: 0401 525 780  
Level 15, Executive Building | 100 George Street | Brisbane | QLD 4000

**From:** premier@nsw.gov.au [mailto:premier@nsw.gov.au]  
**Sent:** Friday, 20 July 2012 9:03 AM  
**To:** Premier  
**Subject:** Moratorium on coal seam gas and liquid natural gas mining in Australia

Dear Minister

I object to the Federal and State governments' broad approval of coal seam gas exploration and LNG processing throughout our farm, conservation and water catchment lands, and demand all CSG drilling and extraction be suspended until these issues are resolved:

- Given the recent csg contamination incidents in the Queensland Surat Basin by Australia Pacific LNG, Cougar Energy in Kingaroy and AGL in the Hunter Valley NSW, it is clear the exploration companies are given far too much autonomy. Authority, access and cost reimbursement must be given to non-pecuniary environmental organisations to monitor the companies' gas exploration and extraction.

- A study of Environmental Assessments submitted to the Department of Planning reveal that many lots for core drilling and extraction are selected because they are already on disturbed land, and given the environmental nod because according to the exploration company paid assessor, no endangered fauna or flora reside on that lot/s. Yet the lots are not monitored for a full four-season cycle, nor wildlife migratory movement, nor the impact on the biodiversity, soil fertility & water purity on adjacent lots and 'downstream.' Full environment impact assessments need to be conducted by non-pecuniary, fully qualified professionals from a bank or pool of individuals who won't be penalised or blacklisted in the future for submitting a negative or pro-development assessment.

- Fines for environmental damage should exceed the potential profits generated by the deliberate or accidental damage, and should be fully enforced. (eg a \$100,000 fine for illegal land clearing will not dissuade a developer that is likely to make a \$2,000,000 profit on the degraded and likely to be rezoned land)

- State and Federal legislation, such as the NSW State Environmental Planning Policy 2007 should be amended to conserve and protect our water catchment, conservation lands and agriculture lands from mining, petroleum and gas exploration. It is incredibly short-sighted and avaricious for Mining and Petroleum exploration to have priority over the environment and agriculture. What good will billions of \$ profit to overseas companies such as Santos or Peabody

do for Australia if we can no longer trust our water supply, and have to import the bulk of our food to feed our nation?

-All Federal and State governments need to employ a system of transparency for the planning of degradation, exploration, extraction and impact on the land that we all own. The CSG industry as it stands in Australia may generate billions of dollars for large overseas companies for the next 30 years, but is likely to cost our country many billions of dollars in lost farm production, contaminated drinking water , health issues and biodiversity loss.

Yours faithfully,

s.73 Personal  
Information

@hotmail.com

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## Sarah Partosh

---

**From:** Premier <premier@ministerial.qld.gov.au>  
**Sent:** Friday, 20 July 2012 4:19 PM  
**To:** The Premier  
**Subject:** FW: Moratorium on coal seam gas and liquid natural gas mining in Australia

**Bec McCoan** | Administrative Officer  
Office of The Hon. Campbell Newman MP | Premier of Queensland  
Bec.McCoan@ministerial.qld.gov.au  
Phone: 322 44363 | Mobile: 0401 525 780  
Level 15, Executive Building | 100 George Street | Brisbane | QLD 4000

**From:** premier@nsw.gov.au [mailto:premier@nsw.gov.au]  
**Sent:** Friday, 20 July 2012 9:19 AM  
**To:** Premier  
**Subject:** Moratorium on coal seam gas and liquid natural gas mining in Australia

Dear Minister

I object to the Federal and State governments' broad approval of coal seam gas exploration and LNG processing throughout our farm, conservation and water catchment lands, and demand all CSG drilling and extraction be suspended until these issues are resolved:

- Given the recent csg contamination incidents in the Queensland Surat Basin by Australia Pacific LNG, Cougar Energy in Kingaroy and AGL in the Hunter Valley NSW, it is clear the exploration companies are given far too much autonomy. Authority, access and cost reimbursement must be given to non-pecuniary environmental organisations to monitor the companies' gas exploration and extraction.
- A study of Environmental Assessments submitted to the Department of Planning reveal that many lots for core drilling and extraction are selected because they are already on disturbed land, and given the environmental nod because according to the exploration company paid assessor, no endangered fauna or flora reside on that lot/s. Yet the lots are not monitored for a full four-season cycle, nor wildlife migratory movement, nor the impact on the biodiversity, soil fertility & water purity on adjacent lots and 'downstream.' Full environment impact assessments need to be conducted by non-pecuniary, fully qualified professionals from a bank or pool of individuals who won't be penalised or blacklisted in the future for submitting a negative or pro-development assessment.
- Fines for environmental damage should exceed the potential profits generated by the deliberate or accidental damage, and should be fully enforced. (eg a \$100,000 fine for illegal land clearing will not dissuade a developer that is likely to make a \$2,000,000 profit on the degraded and likely to be rezoned land)
- State and Federal legislation, such as the NSW State Environmental Planning Policy 2007 should be amended to conserve and protect our water catchment, conservation lands and agriculture lands from mining, petroleum and gas exploration. It is incredibly short-sighted and avaricious for Mining and Petroleum exploration to have priority over the environment and agriculture. What good will billions of \$ profit to overseas companies such as Santos or Peabody



do for Australia if we can no longer trust our water supply, and have to import the bulk of our food to feed our nation?

-All Federal and State governments need to employ a system of transparency for the planning of degradation, exploration, extraction and impact on the land that we all own. The CSG industry as it stands in Australia may generate billions of dollars for large overseas companies for the next 30 years, but is likely to cost our country many billions of dollars in lost farm production, contaminated drinking water, health issues and biodiversity loss.

Yours faithfully,

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@hotmail.com

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## Sarah Partosh

---

**From:** Premier <premier@ministerial.qld.gov.au>  
**Sent:** Friday, 20 July 2012 4:19 PM  
**To:** The Premier  
**Subject:** FW: Moratorium on coal seam gas and liquid natural gas mining in Australia

**Bec McCoan** | Administrative Officer  
Office of The Hon. Campbell Newman MP | Premier of Queensland  
Bec.McCoan@ministerial.qld.gov.au  
Phone: 322 44363 | Mobile: 0401 525 780  
Level 15, Executive Building | 100 George Street | Brisbane | QLD 4000

**From:** premier@nsw.gov.au [mailto:premier@nsw.gov.au]  
**Sent:** Friday, 20 July 2012 12:02 PM  
**To:** Premier  
**Subject:** Moratorium on coal seam gas and liquid natural gas mining in Australia

Dear Minister

I object to the Federal and State governments' broad approval of coal seam gas exploration and LNG processing throughout our farm, conservation and water catchment lands, and demand all CSG drilling and extraction be suspended until these issues are resolved:

- Given the recent csg contamination incidents in the Queensland Surat Basin by Australia Pacific LNG, Cougar Energy in Kingaroy and AGL in the Hunter Valley NSW, it is clear the exploration companies are given far too much autonomy. Authority, access and cost reimbursement must be given to non-pecuniary environmental organisations to monitor the companies' gas exploration and extraction.
- A study of Environmental Assessments submitted to the Department of Planning reveal that many lots for core drilling and extraction are selected because they are already on disturbed land, and given the environmental nod because according to the exploration company paid assessor, no endangered fauna or flora reside on that lot/s. Yet the lots are not monitored for a full four-season cycle, nor wildlife migratory movement, nor the impact on the biodiversity, soil fertility & water purity on adjacent lots and 'downstream.' Full environment impact assessments need to be conducted by non-pecuniary, fully qualified professionals from a bank or pool of individuals who won't be penalised or blacklisted in the future for submitting a negative or pro-development assessment.
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- State and Federal legislation, such as the NSW State Environmental Planning Policy 2007 should be amended to conserve and protect our water catchment, conservation lands and agriculture lands from mining, petroleum and gas exploration. It is incredibly short-sighted and avaricious for Mining and Petroleum exploration to have priority over the environment and agriculture. What good will billions of \$ profit to overseas companies such as Santos or Peabody

do for Australia if we can no longer trust our water supply, and have to import the bulk of our food to feed our nation?

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Yours faithfully,

s.73 Personal  
Information

@gmail.com

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## Sarah Partosh

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**From:** s.73 Personal Information [REDACTED]@hotmail.com>  
**Sent:** Sunday, 22 July 2012 7:50 AM  
**To:** The Premier; beaudesert@parliament.qld.gov.au; agriculture@ministerial.qld.gov.au; tourism@ministerial.qld.gov.au; mayor@scenicrim.qld.gov.au  
**Cc:** [REDACTED].com.au  
**Subject:** Scenic Rim mining

Dear Premier Newman,

I am writing to you again to reiterate my opposition to any coal or Coal Seam Gas development in the Scenic Rim.

The intention of Allegiance Coal to permanently scar the landscape of the Scenic Rim is self-serving, introspective and unacceptable. The details of the rehabilitation plan as described by Allegiance Coal CEO Colin Randall constituting nothing more than allowing an exhausted mine pit to fill with water is cheap cost cutting, the inevitable result of developing a mine that is barely economically viable. Who will be left responsible for managing this site? Who will be responsible for funding the control of the Declared weed species that will colonise such a degraded site and shifting water levels?

The benefits to the local community amounting to nothing more than possibly 30 jobs as machinery operators: insulting. I applaud your government's decision to attempt to reinvigorate the QLD economy through balanced, sustainable industries. The development of the Mintoale mine (Mineral Development Licence 138) will be to the detriment of the local tourism and accommodation operators, outdoor education facilities, vineries and hospitality outlets which rely on the tourism generated by a rural landscape dominated by World Heritage mountain wilderness. The view from the peaks of the Scenic Rim will be degraded by this marginal, short-term development and the tourism it supports undermined.

Queensland should envy the tourism revenue generated by the Barossa Valley, by its village communities that have preserved a distinct, unique atmosphere. Within South East Queensland we have the wineries of the Granite Belt, the World Heritage National Parks of Main Range and Mt Barney and the beauty of Girraween National Park as our draw card. These assets are accessed by many via the Scenic Rim and specifically the Falls Tourist Drive which runs adjacent to the western boundary of the Allegiance Coal mining lease. What sort of impact would encountering a relentless procession of mining trucks on narrow country roads and clogging clouds of dust have on tourism in this region?


I encourage you again to be the catalyst for creating a unique, enduring tourism region that is supported by agriculture. Of setting in place the mechanisms for protecting distinct regional communities and industries that in the future will be the source for sustainable tourism. Familiarise yourself with the "Keep the country country" movement in England; with the tourism and business opportunities being sustained by rural landscapes and industries within close proximity to urban centres.



I ask again that you urgently enact your election promise to protect the Scenic Rim from mining and CSG.

Yours Sincerely,

s.73 Personal Information

A large rectangular area of the document is redacted with a solid grey fill. The text 's.73 Personal Information' is located at the top left corner of this redacted area.

Released under RTI - DPC

**Sarah Partosh**

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**From:** s.73 Personal Information [REDACTED]@gmail.com>  
**Sent:** Tuesday, 24 July 2012 1:51 PM  
**To:** The Premier  
**Subject:** Collateral damage

You may be interested to know that the complaints we have are shared around the world. This was sent to me this morning, well Premier Newman, a QGC executive stated in projects of this size there is sure to be collateral damage, I dont see my self as collateral damage material, i think you underestimate the power of people who fight. It is not acceptable that your Government condones a foreign power to inflict harm, loss and injury my family, not acceptable. Now I know you learned this behaviour from the previous Government, but I presum you had greater morals, sadly it appears to be change only for the worse under your Government. Please read the following and explain how allowing this harm, loss and injury is adhering to your oath of office.

<http://www.texassharon.com/2012/07/23/letter-from-the-eagle-ford-shale-tells-of-rashes-nosebleeds-and-misery/>



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**Sarah Partosh**

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**From:** s.73 Personal Information [redacted]@hotmail.com>  
**Sent:** Monday, 30 July 2012 9:01 AM  
**To:** The Premier; health@ministerial.qld.gov.au; environment@ministerial.qld.gov.au; deputypremier@ministerial.qld.gov.au; toowoomba.south@parliament.qld.gov.au; nrm@ministerial.qld.gov.au  
**Subject:** An important peer reviewed doc "Coal Seam Gas: future bonanza or toxic legacy" by Dr Marion Carey of Doctors for the Environment Australia

Dear Premier Newman,

All Queensland politicians and doctors need to pay attention to this significant peer reviewed information. As you are aware, the current serious health impacts on people living amidst coal seam gasfields is of immense concern to the general public.

Thanks for your attention,  
[redacted]

<http://dea.org.au/images/general/vie>  
[wpoint issue 8 CSG.pdf](#)

**Sarah Partosh**

---

**From:** [REDACTED] s.73 Personal Information [REDACTED]@net.au>  
**Sent:** Tuesday, 31 July 2012 1:44 PM  
**To:** The Premier  
**Subject:** Coal Seam Gas

Dear Mr Newman

I write to you as a supporter of your party both Nationally and also in Queensland, who has stood and argued daily the need to change from Labor to rid ourselves of the likes of Bligh Beattie and co. However I am starting to get the idea that who you replaced is what you are starting to become, this what we thought we got rid of. Coal Seam Gas Mining should be knocked on the head and it should happen right now. This is Mining is a putrid National and Queensland disgrace only for a quick financial treat and the expense of the environment, national interests and long term financial interests to close this vile destructive industry down, it is about time you declared your cards on this issue for we have had enough of the blame shifting on this subject, Gladstone is an absolute disgrace stop it now before any further damage is done.

Listen to what the voters are saying Mr Newman for the international mining companies do not vote, we do.

[REDACTED]

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**Sarah Partosh**

---

**From:** [REDACTED] s.73 Personal Information@gmail.com>  
**Sent:** Wednesday, 1 August 2012 7:19 PM  
**To:** The Premier  
**Subject:** my family is being harmed

Mr Newman, A typical day in my house is waking up and giving big hugs to my kids because they wake up with itchy skin and craker headaches. Telling them that Mummy, Daddy, Nanny and Poppy know that they are very sick and that they are trying to get them better and to stop the nasty people from polluting our air, water and Earth with the coal seam gas procedures. As the day progresses the number of ailments increase and they include, headaches worsening, blood noses, coughs, joint aches, burning and stinging eyes, limbs tingling, massive chest pains even in the young, burning throats, rashes that are getting worse and spreading, shortness of breathe and [REDACTED] Bath time is the worse. We have tank water that I suspect is now contaminated by airborne from the frack ponds in the coal seam gas field. My children get chemical burns from our water, they get out of the bath with red raw skin and screaming in agony. This is happening everyday to my family in Kogan QLD and families in the Tara Estate. HOW DO YOU WAKE UP EVERY MORNING, MR NEWMAN?

Why won't you help us?

[REDACTED]

[REDACTED]@gmail.com

ph

Released under RTI - Disclosure

## Sarah Partosh

---

**From:** The Premier  
**Sent:** Thursday, 2 August 2012 8:39 AM  
**To:** The Premier  
**Subject:** support

**Importance:** High

Subject: support

Title: mr

First Name: [REDACTED] s.73  
Personal  
Family Name: [REDACTED] information

Email: karenhoefer2@dodo.com.au

-----  
Address: [REDACTED]  
Town: [REDACTED]  
State: [REDACTED]  
Postcode: [REDACTED]  
Email: [REDACTED]@dodo.com.au  
-----

Comment:

mr newman i would like to offer my support for your reality stance.this rationalisation message, long overdue, is becoming understood worldwide.the noises of those in qld who still cannot see, are understood for what they are.for the first time in quite a while i'm proud to be a queenslander.please though also rationalise the csg urgency.thanks.

**Sarah Partosh**

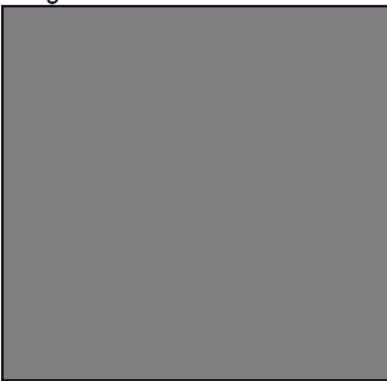
---

**From:** s.73 Personal Information [redacted] com.au>  
**Sent:** Monday, 6 August 2012 8:49 AM  
**To:** The Premier  
**Subject:** Boonah Land

Dear Mr Premier,

[redacted] of land in the Boonah Shire on Sawatzki Road. We have been informed that there is the likelihood of either a Coal Seam Gas mine or open cut Coal Mine being approved for this area. Obviously if this is the case we don't want to go ahead and purchase this land. Can you let me know if this is likely to go ahead or not.

*Regards*



Released under RTI - DPC

**Sarah Partosh**

---

**From:** s.73 Personal Information@gmail.com>  
**Sent:** Tuesday, 14 August 2012 11:11 PM  
**To:** s.73 Personal Information penny\_hutchinson@health.gov.au; The Premier; Health@ministerial.qld.gov.au; Drew Hutton; [REDACTED]  
**Subject:** health impacts of living in a gas field

PLEASE HELP!!!

My name is [REDACTED] and I live in Kogan, Qld. I have been keeping a day to day health journal (of which I am willing to share) of my family since the 9th July 2012 for the effects of living in a coal seam gas field. I have also taken photos which I will attach to an email and more will follow. This has been going on for a number of years now. The health complaints are increasing. I have been to the doctors at

[REDACTED]

I have phoned the 13HEALTH number several times and I had to complete a survey and other times I was on hold for too long. The situation is becoming worse and fast, something needs to be done now, not next month or next year. PLEASE recommend to whoever it is that can do something, that our families need help. My family and I are trying to get out, we want to sell our property, but that is proving difficult. We have searched and enquired about rentals, they say no because of my family situation. We have also enquired about living in a caravan or tent, that is just as expensive as renting a house and pets are unwelcomed. I have many a friends who are in the very same situation as my family, some are worse. This can not continue on, we are AUSTRALIAN GAS REFUGEES and we deserve some help too!!

[REDACTED] and Family

Released under the  
Official Information Act

**Sarah Partosh**

---

**From:** s.73 Personal Information [redacted]@hotmail.com>  
**Sent:** Thursday, 16 August 2012 9:05 AM  
**To:** The Premier  
**Subject:** Gas well AVON downs NO1

Dear Premier Newman,

Re the above gas well put down by QGC in the year 2000 (Dec) and evaporation ponds within 120 mtrs of Columboola Creek between Chinchilla and Miles [redacted]

[redacted] the saline discharge of the ponds when decommissioned in August 2006. The water and saline brine ran down into this creek and contaminated the water in the creek which my paddock was watered by. The then DERM Dep. let QGC/BG rehabilitate this area with no fine for breaking their EA or EIS, no compensation has been paid to me there has been an amount offered which I feel is far too small. I would like a full investigation into this Avon Downs No1 Gas well by your new Dept. that replaced the old DERM. please, the well itself is 85mtrs from the Columboola Creek, part of the Murray Darling system. I believe that DERM hasd considered this matter closed and will not re enter QGC/BC reps have told me on phone they have no records of this well before BG took over QGC, this has been going on for 6 years and QGC/BG want to end the negotiations without both parties agreeable, please reply as soon as possible thanks [redacted]

[redacted]

Ph. [redacted]

[redacted]

Released under RTID82



**Sarah Partosh**

---

**From:** The Premier  
**Sent:** Thursday, 16 August 2012 11:46 AM  
**To:** The Premier  
**Subject:** CSG in the Surat Basin

**Importance:** High

Subject: CSG in the Surat Basin  
Title: Mr and Mrs  
First Name: [Redacted]  
Family Name: [Redacted]  
Email: [Redacted]@bigpond.com

Address: [Redacted]  
Town: [Redacted]  
State: [Redacted]  
Postcode: [Redacted]  
Email: [Redacted]@bigpond.com

**Comment:**

With Respect Premier Newman,  
THIS IS AUSTRALIA CALLING.

Some of the best agricultural land in, not only Queensland, but also Australia, at Cecil Plains in the Surat Basin, is about to be decimated, over a short period of time by more than 40,000 mining wells, together with 7,500 kms of roadways and the infrastructure required to mine CSG by foreign owned Resource Company Arrow, across this prime agricultural land. It is vital that you urgently visit this area before the commencement of the first well on August 20th. This prime agricultural land, together with the waters of the GREAT ARTESIAN BASIN, relied on by a huge proportion of inland Australia, is under threat. The Condomine River Aquifers, then in turn the Murray Darling Basin will most certainly also be affected, by how much is yet unknown, despite unreliable assurances from the mining company. The proposal to pump water back into the aquifers is thwarted by foreseeable problems, especially salt and other mineral pollution. Any floods similar to that on the Condomine in late 2011-12 present even further abominable possibilities of destruction to the land as a result of the all weather infrastructure that is proposed. Australia relies on these rich plains for food and cropping. This land will never return to it's current production levels. The local community together with vast media personnel and many supporters propose to thwart the efforts of the company on the above date. It appears common sense has now disappeared and we request that you involve your Parliament in a close inspection of this area NOW and put a halt on these activities until the issues are resolved and the land protected. The mental and physical stresses and disruption to family life and farming activities are beyond description. We are retired graziers from Victoria staying in the area and are astounded at the proposals to lose this productive land for the next 30 years and beyond. PLEASE DO NOT ALLOW THIS TO HAPPEN.

Respectfully yours truly,

**Sarah Partosh**

---

**From:** Premier <premier@ministerial.qld.gov.au>  
**Sent:** Thursday, 16 August 2012 4:15 PM  
**To:** The Premier  
**Subject:** FW: Gasfield Community Support Group requests a meeting with Gasfields Commission QLD

**Please attach to file.**

---

**From:** Brier, Andrew [mailto:Andrew.Brier@gfcq.org.au]  
**Sent:** Thursday, 16 August 2012 3:14 PM  
**To:** Natural Resources; Environment; Premier; Deputy Premier; Enquiries (gfcq); Attorney; Health; Pumicestone; 'premiers.master@premiers.qld.gov.au'  
**Subject:** FW: Gasfield Community Support Group requests a meeting with Gasfields Commission QLD

G'day All,  
FYI - reply sent to Ms. [redacted] from the GasFields Commission in relation to her email sent 4:46pm Friday 10 August.

Regards,  
Andrew

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sonal  
I  
nf  
orma  
tion

Andrew Brier  
General Manager  
GasFields Commission Qld  
**Phone:** 07 4529 1220  
**Mobile:** [redacted]  
**Email:** [Andrew.Brier@gfcq.org.au](mailto:Andrew.Brier@gfcq.org.au)  
Block A, 203 Tor Street Toowoomba 4350  
PO Box 102, Toowoomba 4350

---

**From:** Enquiries (gfcq)  
**Sent:** Thursday, 16 August 2012 2:18 PM  
**To:** [redacted] s.73 Organisation [redacted]@hotmail.com'  
**Subject:** FW: Gasfield Community Support Group requests a meeting with Gasfields Commission QLD

Dear [redacted]

I have received your email regarding a meeting between the [redacted] and the GasFields Commission Qld. I issued a personal invitation to [redacted] for the group to put their position to the Commission and I understand this has been organised for the [redacted] in Chinchilla. While I understand your personal situation and the issues you have with travelling at the moment, the commitments of the Commission next week mean that there is insufficient time for travel to your home for the meeting. I look forward to hearing from the group on the [redacted] and discussing the issues raised.

regards

John Cotter  
Chairman  
GasFields Commission Qld

---

**From:** Debbi Orr [mailto:[redacted]@hotmail.com]  
**Sent:** Friday, 10 August 2012 4:46 PM

**To:** Cotter, John

**Cc:** Andrew Cripps; Andrew Powell; Campbell Newman; [deputypremier@ministerial.qld.gov.au](mailto:deputypremier@ministerial.qld.gov.au); Drew Hutton; Enquiries (qfca); Jarrod Bleijie; Lawrence Springborg; Lisa France; [premiers.master@premiers.qld.gov.au](mailto:premiers.master@premiers.qld.gov.au)

**Subject:** [REDACTED] requests a meeting with Gasfields Commission QLD

Attention John Cotter,

I am following up on a telephone conversation between [REDACTED] and Amanda Thomas (Gasfields Commission) yesterday 9th August 2012, where [REDACTED] had requested a meeting with you at my home to further discuss our concerns, and what the Gasfields Commission's plans are to address the situation.

I do believe the response given to our request for a meeting was that you would be in Chinchilla on the 22nd August to take submissions and we would have to attend there if we would like to speak with you.

I do believe [REDACTED] explained I am unable to travel as I am only 2 weeks off my due date of the 26th August, which is why we requested the meeting take place at my home.

As has been done many times previously with various meetings between us and CSG Companies and also various Government Departments.

We would prefer not to delay things any more than absolutely necessary, as there are many impacted residents who are dependent upon us giving them a voice.

Amanda has been in attendance at both [REDACTED] meetings, and would have mentioned our concerns.

Ian Halyor is aware of our concerns, and has been to Tara over 3 years ago and has even spoken to a few impacted residents.

Where as Ray Brown is also aware of our concerns regarding health impacts, and has also been aware of the situation for over three years, where during those 3 years every time claims were made regarding health impacts or against the CSG industry, he ALWAYS jumped to their defence and tried to discredit our claims, without ever once having discussed the situation with any persons making the claims.

So, once again I must ask exactly what is the role of the Gasfield Commission, and exactly who is it set up to represent?

Obviously it is not set up to represent the people who are being impacted by the CSG industry.

Hopefully you will reconsider our request to meet us at my home, as I feel this situation needs to be treated as a matter of extreme importance, and I would hate to think that the Gasfields Commission does not take seriously the concerns of the residents who are being impacted by the CSG industry.

regards

[REDACTED]

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**Sarah Partosh**

---

**From:** Premier <premier@ministerial.qld.gov.au>  
**Sent:** Friday, 17 August 2012 8:04 AM  
**To:** The Premier  
**Subject:** FW: Clean TeQ ASX Release  
**Attachments:** 16082012- Update On AW from Clean TeQ.pdf

---

**From:** Ashgrove Electorate Office [<mailto:ashgrove@parliament.qld.gov.au>]  
**Sent:** Friday, 17 August 2012 7:46 AM  
**To:** Premier  
**Subject:** FW: Clean TeQ ASX Release

---

**From:** Max Winders [<mailto:MaxW@mwaenviro.com.au>]  
**Sent:** Thursday, 16 August 2012 5:04 PM  
**To:** Ashgrove Electorate Office  
**Cc:** Peter Bates ([peter.bates@associatedwater.com.au](mailto:peter.bates@associatedwater.com.au)); [davidwinders@bigpond.com](mailto:davidwinders@bigpond.com)  
**Subject:** FW: Clean TeQ ASX Release

Hi

I am forwarding this email again which failed because of the size of the PowerPoint presentation.

I will send you the link to it via yousendit.

Hoper this is not a problem.

Max

Max Winders  
Managing Director

Max Winders & Associates Pty Ltd tas  
MWA Environmental



Lvl 15, 241 Adelaide Street  
BRISBANE QLD 4000  
(GPO BOX 3137, BRISBANE Q 4001)  
Tel: 07 3002 5500  
Fax: 07 3002 5588  
Email: [maxw@mwaenviro.com.au](mailto:maxw@mwaenviro.com.au)  
Web: [www.mwaenviro.com.au](http://www.mwaenviro.com.au)

---

**From:** Max Winders  
**Sent:** Thursday, 16 August 2012 4:35 PM  
**To:** [ashgrove@parliament.qld.gov.au](mailto:ashgrove@parliament.qld.gov.au)



Cc: [davidwinders@bigpond.com](mailto:davidwinders@bigpond.com); Peter Bates ([peter.bates@associatedwater.com.au](mailto:peter.bates@associatedwater.com.au))

Subject: FW: Clean TeQ ASX Release

Good afternoon.

I would be grateful if Campbell could be made aware of this ASX release. The plant is being installed at our feedlot near Dalby. It is relevant that it will produce "agricultural quality" water for irrigation and livestock watering, as well as to produce gypsum as a byproduct of the chemical ion exchange process – gypsum being a soil conditioner that offsets the effects of excess salt in irrigation water.

I have also included a PowerPoint presentation I delivered to meetings in Wandoan and Condamine regarding the protection of landholders rights from depletion of the aquifers of the Surat Basin by the relatively unregulated coal seam gas industry.

The presentation includes slides showing the two stages of the plant proposed for Wambo Feedlot (construction starting Monday and completion late September) as well as a photo of the Higgins Loop demonstration plant which performed well but the partners in that project (Leighton Contractors and Severn Trent) are still working on an agreement for commercialising the process in Australia so that it might be employed by "water service providers" authorised to do this under the *Water Supply(Safety & Reliability) Act*.

You might note that I have finished the presentation with a call for three pieces of legislation to be amended to allow this process to occur. I referred to this in my earlier submission regarding the QWC's *Draft Underground Water Impact Report*.

I would be pleased to discuss the above with Campbell or his relevant adviser at a convenient time. It is an issue which is being taken up by major players in the beef industry whose access to viable supplies of underground water has been over-regulated and, in the case of feedlots and processors, access is being denied and they need a fresh approach which an upgrade of the QWC modelling could provide the basis.

Regards

Max

Max Winders  
Managing Director

Max Winders & Associates Pty Ltd tas  
MWA Environmental



Lvl 15, 241 Adelaide Street  
BRISBANE QLD 4000  
(GPO BOX 3137, BRISBANE Q 4001)  
Tel: 07 3002 5500  
Fax: 07 3002 5588  
Email: [maxw@mwaenviro.com.au](mailto:maxw@mwaenviro.com.au)  
Web: [www.mwaenviro.com.au](http://www.mwaenviro.com.au)

From: Peter Bates [<mailto:peter.bates@associatedwater.com.au>]

Sent: Thursday, 16 August 2012 1:13 PM

**To:** Max Winders  
**Subject:** Clean TeQ ASX Release

Max,

Please find attached a copy of this morning's Clean TeQ ASX announcement.

Please feel free to use this document as you see fit. It is in the public domain.

Warm regards,

**Peter Bates**

**General Manager | Associated Water Pty Ltd | [www.associatedwater.com.au](http://www.associatedwater.com.au)**

Direct 07 3188 9110 | Mob 0407 154 394 | Fax 07 3188 9119

[peter.bates@associatedwater.com.au](mailto:peter.bates@associatedwater.com.au) | Skype pb.a.water

Suite 3, 88 Brandl Street | Brisbane Technology Park | Eight Mile Plains QLD 4113

***A Clean TeQ Nippon Gas Joint Venture***

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## **Update on Joint Venture for Water Desalination in the Australian Coal Seam Gas Industry**

Clean TeQ Holdings Limited (**ASX; CLQ**) is pleased to provide an update on the commercialisation of its proprietary licensed CIF™ technology in the coal seam gas industry. The license was provided to Associated Water Pty Ltd, a Joint Venture Company with Tokyo based Nippon Gas Co., Ltd (TSE: 8174) to provide water desalination in the Australian coal seam gas industry. The aim of the Joint Venture is to provide sustainable water treatment to the Coal Seam Gas (CSG) industry using Clean TeQ's innovative "Continuous Ionic Filtration" (CIF™) technology as a basis for the desalination process.

The coal seam gas water market has the potential to be one of the biggest emerging water treatment markets globally. The rapid expansion in exploration and development of coal seam gas fields has led to an urgent need for new and cost effective water treatment solutions with an emphasis on the minimization of the environmental legacy of by-product brine streams.

Associated Water will commence commissioning a dual-stage CIF™ plant, known as DeSALx™, at the WAMBO Cattle Company operation, west of Dalby, Queensland in September 2012. The plant will accept coal seam gas associated feed water with a TDS (total dissolved solids) of about 5,000 mg/L and produce water with a TDS of around 1,500 mg/L, a level suitable for a wide range of irrigation and livestock needs.

The plant will showcase a 0.5MLD (500m<sup>3</sup>/day) semi-portable modular CIF™ plant and a 0.5MLD containerised mobile CIF™ plant operated together to perform the desalination process (the DeSALx™ process). Associated Water will supply WAMBO Cattle Company with desalinated water, highlighting the opportunities available for the CSG industry and agriculture to co-exist through the efficient and economical processing of associated waters for beneficial reuse by local landholders and communities.

WAMBO plans to use this desalinated water for cattle watering, irrigation and augmentation of its stored water supplies.

**Clean TeQ Holdings Limited**  
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**F** +61 3 9706 8344  
**W** [www.cleanteq.com](http://www.cleanteq.com)  
**E** [info@cleanteq.com](mailto:info@cleanteq.com)

Peter Voigt, CEO Clean TeQ and Associated Water said;

“The coal seam gas industry is heading towards the bulk transportation of produced water to centralised holding ponds and subsequent treatment by large reverse osmosis treatment plants. This approach has a number of limitations including the transportation costs, the increasing volumes of water involved in the industry and the relocation of the water from its origin. The benefit of the Associated Water approach is to treat the water and make it available locally for the landholders and farmers. We are investing in this project, independent of the CSG companies, to demonstrate and highlight the benefits that the desalinated water from the CSG Industry can bring to local communities and to showcase an innovative holistic solution to integrated associated water management.”

“Our technology is specifically designed to provide a high recovery of “fit for purpose” water, in this case water for agricultural purposes, delivered in an economical way. We believe CIF™ has the potential to be the most appropriate treatment technology for the responsible management of coal seam waters, and when partnering with local communities provide viable localised beneficial re-use opportunities.”

This demonstration follows the sale of a 4MLD CIF™ water treatment plant to QGC, by Clean TeQ, which is yet to be commissioned. The Associated Water desalination demonstration with Wambo will be independently verified to confirm the potential opportunities available for the deployment of the technology in the coal seam gas industry.

**For more information:**

Greg Toll, Executive Chairman	+613 9797 6700
Melanie Leydin, Company Secretary	+613 9797 6700

**About Clean TeQ Holdings Limited (ASX: CLQ)**

Clean TeQ (ASX: CLQ) is a leading Australian clean technology business that focuses on providing solutions for the purification of air, water and mineral resources. The Company's technologies provide our customers with focused, fit-for-purpose solutions that are specifically targeted to “do more with less”. Clean TeQ provides innovative technologies and partners with leading technology suppliers worldwide. For more information about Clean TeQ please visit the Company's website at [www.cleanteq.com](http://www.cleanteq.com). Associated Water Pty Ltd is a 50:50 Joint Venture with Nippon Gas., Ltd (TSE: 8174).

**Clean TeQ Holdings Limited**  
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**Sarah Partosh**

---

**From:** Premier <premier@ministerial.qld.gov.au>  
**Sent:** Monday, 20 August 2012 10:02 AM  
**To:** The Premier  
**Subject:** FW: BAD NEWS AGAIN FROM TARA...NOT GOOD GUYS...

---

**From:** [REDACTED] [5.73 Personal Information]@optusnet.com.au]  
**Sent:** Saturday, 18 August 2012 6:26 PM  
**To:** Premier  
**Subject:** BAD NEWS AGAIN FROM TARA...NOT GOOD GUYS....

[premier@ministerial.qld.gov.au](mailto:premier@ministerial.qld.gov.au)

<http://www.youtube.com/watch?v=ZowX4KWKVf0>

more bad news Mr Newman,

seems there is 26 plus families, in this situation: and prob more that havent come forward yet.. for sure there is....

I will see if the Catholic Churches around them can get them out of there temporarily..... something has to be done

maybe the state gov could buy them out so they can move, as they cant sell the land this a story in all Tara and Chinchilla, and now Australia wide....no one will buy land near any frack well or even miles away from one  
thanking you,

ps there is more to come..... coal seam gas, is NOT open cut mining, it is fraught with GASSING towns with SOUR GAS and toxins..... it really has to be looked into, and all FRACKING should be banned like France....

this is what the whole story of australia will be,  
please please ask me if you want proofs..... there are 20 years of proofs in the united states alone

thanks  
[REDACTED]

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## Sarah Partosh

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**From:** s.73 Personal Information <[REDACTED]>@gmail.com>  
**Sent:** Thursday, 23 August 2012 1:53 PM  
**To:** The Premier  
**Subject:** NT News article

Dear Mr Newman MP,

Can you please explain why you are attacking the Federal environment minister Mr Tony Burke for time taken to approve mining applications when Queensland's own Department of Natural Resources admits they, to date, do not have a long term management plan for issues that may arise like the gas fire at Dalby.

Can you also answer some questions I am putting to a number of federal ministers:

Can you please provide answers to some of my questions regarding csg mining and the carbon tax.

- Are you aware that methane gas is considered by experts to be more environmentally damaging than CO<sub>2</sub> emissions?
- While you have pushed through a new carbon tax pricing schedule are you doing anything to monitor the amount of methane gas that may be leaking due to the CSG mining processes?
- Can you provide a science based answer that allows me to not worry that CSG mining - a process which releases gas to well heads - will only release gas to well heads and not allow the gas to come to the surface through cracks, water bores, old abandoned mining exploration bores?
- You have reduced true renewable energy rebates at a state and federal level but can you guarantee Australia's future food and water security?
- Are you aware of health concerns for families at Tara that may be associated to CSG mining?
- Are you able to state with confidence that you know where **all** of the waste water from this mining process goes?
- Are you aware that cattle at Kingaroy near csg well heads tested positive to benzene and toluene - Qld have far fewer csg well heads than the 40,000 plus which may be approved - can you ensure all cattle producers that with 40,000 plus csg well heads their cattle will not consistently test positive to those or other chemicals used in csg mining?
- Can you ensure that old water bores that may go into/close to the great artesian basin will not allow any products from the csg mining process to enter this basin?

<http://www.smh.com.au/national/miner-demanded-change-to-survey-20111122-1nszc.html>

Have you seen the article in the above link? This may mean that the government approval process for mining applications has been compromised due to incomplete reporting practices by mining companies, can you conduct a review of approvals? I would love to see a Royal Commission - really I would.

I thank you in advance for answering these questions.

Kind Regards

s.73 Personal Information

CC all Independent and Green Ministers

Address: [REDACTED]

[REDACTED]

Released under RTI - DPC

## Sarah Partosh

---

**From:** Premier <premier@ministerial.qld.gov.au>  
**Sent:** Thursday, 30 August 2012 11:17 AM  
**To:** The Premier  
**Subject:** FW: APPEA Letter  
**Attachments:** 0653\_001.pdf

---

**From:** Laura Carlton [mailto:lcarlton@appea.com.au]  
**Sent:** Thursday, 30 August 2012 11:04 AM  
**To:** Premier  
**Subject:** APPEA Letter

Dear Premier

Please find attached a letter from the Australian Petroleum Production & Exploration Association (APPEA) for your perusal.

Please let me know if you have any questions.

Kind Regards

Laura Carlton

**EA to COO Rick Wilkinson & Office/Events Coordinator (QLD)**

Australian Petroleum Production & Exploration Association Limited (APPEA)

T +61 (7) 3231 0506

P Suite 7 Level 3, The Christie Centre, 320 Adelaide Street, Brisbane QLD 4000

E [lcarlton@appea.com.au](mailto:lcarlton@appea.com.au) | W [www.appea.com.au](http://www.appea.com.au)

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30 August 2012

The Hon. Campbell Newman MP  
Queensland Premier  
Premier@ministerial.qld.gov.au

Dear Mr Newman,

**RE: APPEA Natural Coal Seam Gas advertising campaign**

This week, the peak body representing Australia's oil and gas industry, APPEA, launched a new advertising campaign to combat untruths and myths about coal seam gas (CSG) being propagated by The Greens and professional activists.

The campaign "*Natural coal seam gas. It's cleaner, It's safer. It's jobs. It is the future*", will highlight the facts that:

- **The industry is expected to pay approximately \$1 billion every year to the Queensland Government in royalties to help pay for new roads, hospitals and services;**
- **More than 2700 landholders have already signed up to work with CSG companies and directly benefit financially from CSG operations on their land.**
- **Water quality and quantity is protected. The Queensland Water Commission found CSG activity poses a low risk to groundwater supply levels;**
- **The CSG industry in Queensland has already employed more than 12,000 people and is on track to reach a target of 18,000 jobs as projects progress.**

A safe, regulated and well managed CSG industry in Queensland is playing a vital role by providing economic development, new jobs and new supplies of energy.

We strongly believe your constituents deserve the facts on this important issue and we hope this campaign will assist them in making up their own minds.

Yours sincerely



Rick Wilkinson  
CHIEF OPERATING OFFICER – EASTERN AUSTRALIA



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## Sarah Partosh

---

**From:** Premier <premier@ministerial.qld.gov.au>  
**Sent:** Wednesday, 5 September 2012 1:26 PM  
**To:** The Premier  
**Subject:** FW: CISRO REJECTS CSG INDUSTRY ADVERTISING CLAIMS, & has instructed the Industry to cease the Ads.

**From:** [s.73 Personal Information]@gmail.com]  
**Sent:** Wednesday, 5 September 2012 1:03 PM  
**To:** Campbell Newman  
**Subject:** CISRO REJECTS CSG INDUSTRY ADVERTISING CLAIMS, & has instructed the Industry to cease the Ads.

5 Sept 2012

Dear Campbell Newman,

You may be interested in this article. It's about time the CSG Industry ceases destroying our Nation's prime farming lands.

### Read all about it here:-

The CSIRO has rejected claims made by the coal seam gas industry in a new TV advertising campaign, and asked last week that the ads not be aired.

The commercial includes the statement: "CSIRO [and government studies] have shown that groundwater is safe with coal seam gas".

However, the national science body said this afternoon that this claim was not true.

"At no time has CSIRO made such a statement, and nor do the results of CSIRO research support such a statement," the organisation said.

"CSIRO has stated on the public record that coal seam gas extraction is likely to pose a 'low risk' to groundwater quality through contamination," it said.

The TV commercials were produced for the coal seam gas industry body, the Australian Petroleum Production and Exploration Association, which said it had "taken the CSIRO's comments on board".

The ads were aired on Sunday night in Queensland where the gas industry is rapidly expanding, and are part of a campaign that reportedly cost \$2.5 million to put together.

"APPEA has created a number of ads for its latest CSG campaign that relate to economic benefit, environmental protection, energy security and technological know-how," a spokesman for the industry body said.

"All of our ads have been approved as factual by the independent advertising regulator. The ads we run, where we run them, and when we run them, will be determined over the months ahead. However, we have taken CSIRO's comments on board."



The statement, released today by the national science body, said: "CSIRO has also indicated that groundwater levels will fall as a consequence of coal seam gas extraction. In some places this could see aquifer levels subside by tens of metres for tens of years; in others it is likely to reduce aquifer levels by several metres for several hundred years."

The CSIRO said it became aware of the ads last Friday and "requested for the commercial not to be aired".

The activist group Lock the Gate and the Greens also asked for the ads to be taken off air.

The gas industry in Australia has maintained for years that gas drilling does not significantly affect the underground water aquifers that farmers rely on.

More than 10,000 coal seam gas wells are planned for Queensland, to be drilled over the next decade.

The industry is also expanding in NSW, with at least 4000 wells proposed over the coming decade.

Read more: <http://www.smh.com.au/environment/water-issues/csiro-rejects-coal-seam-gas-claims-20120904-25c94.html#ixzz25V9yITP7>

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## Sarah Partosh

---

**From:** s.73 Personal Information [redacted]@optusnet.com.au>  
**Sent:** Wednesday, 5 September 2012 6:08 PM  
**To:** The Premier  
**Subject:** coal seam gas mining

Mr Newman, it is apparent that you are knowingly allowing coal seam gas mining companies to destroy land, water, wildlife and people in Queensland. When the land and water is so contaminated people can no longer live there.....where will they go, where will they grow crops, when the largest underground aquifer in the southern hemisphere is contaminated, what water will they drink. Germany and France have banned fracking. Have you not contemplated why? There is very good reason why and you need to take note. Do you wish to be remembered for the premier who destroyed Queensland or the hero who stop the fracking? Please protect Queensland for us and future generations.

I personally know a farmer who has had to leave his farm at Tara due to sickness caused by leaking gas wells. His farm water is flammable, the bore water almost dried up, his land unsaleable, him and his family sick. Does this not concern you? Please put yourself in his shoes.

Best Regards

[redacted]

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**FREE FAX**  
**BUTTON.COM**

**DATE:** 10 Sep, 2012, 4:49 pm

**TO :** Premier Campbell Newman  
**FAX :** +01161733666202

**FROM:** s.73 Personal Information  
**REPLY TO:** @optusnet.com.

**RE:** Coal seam gas mining  
 Urgent     For Your Review     Call Me     Please Handle

Mr Newman, just imagine it was you, and your family, who have gas wells forced upon your land. Just imagine it is you and your family who are sick from the leaking gas wells, bleeding from ears and nose, headaches and rashes; imagine being so sick you have to leave your farm, just imagine your land is so contaminated you cannot grow crops, your water is flammable, real estate will not even attempt to sell your land because there are gas wells on it. Imagine that Mr Newman, if you can, and then tell me you would want coal seam gas mining.  
Please call a halt to the practice of fracking and call a moratorium on coal seam gas mining in Queensland until true safety regulations are in place thank you.

**ENTERED**

10 SEP 2012

**BY:** 02/9/2012

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**FREE FAX**  
**BUTTON.COM**

021/9/2012

**DATE:** 11 Sep, 2012, 9:18 pm

**TO :** Premier Campbell Newman  
**FAX :** +01161733666202

**FROM:** s.73 Personal Information  
**REPLY TO:** [REDACTED]@optusnet.com.

**RE:** please stop the fracking  
[ X ] Urgent [ ] For Your Review [ ] Call Me [ ] Please Handle

Please Mr Newman listen to the farmers who have been negatively affected by coal seam gas mining. Due to gas wells leaking, farmers' families are sick - bleeding from the ears and nose, headaches and rashes. Families have to leave their land that they intended to spend the rest of their lives on. But they can no longer drink the water or grow crops due to contamination from gas wells. Please Mr Newman hear the farmers' please for help and call a halt to fracking - Germany and France banned it. Improve environmental regulation and monitoring to ensure people and the environment will not be poisoned by coal seam gas mining. Better still change over to clean, renewable resources. Please watch this 4 minutes clip on how we can achieve 100% clean renewable energy. <http://www.youtube.com/watch?v=qImNRuV4G0Q&feature=related>

Be a leader, not a puppet of the mining industry.

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**Sender IP:** [REDACTED]  
**IP Location:** Australia

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Email: [Redacted]  
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11<sup>th</sup> September 2012

Hon Campbell Newman MP  
Premier  
PO Box 15185  
City East  
Queensland 4002

Dear Mr. Newman,

**Coal Seam Gas Mining in Queensland (Fracking)**

You have been quoted in both the Brisbane Times and the Herald Sun on 20<sup>th</sup> January 2012 that your Party would not approve Coal Seam Gas extraction in the Scenic Rim by Arrow Energy (a subsidiary of Shell).

Your quote; "Arrow Energy should pack up and head out of town". Perhaps they should head into town because their CSG operations are nearly all carried out in unspoilt rural areas!

The Kerry Valley, which I am familiar with, and is within the Scenic Rim, is a wonderful, peaceful valley leading to Worlds End. The Albert River runs through this valley, and is home to the Australian Lungfish (*Neoceratodus forsteri*) an iconic species amongst many other aquatic species. The Glossy Black Cockatoo (*Calyptorhynchus lathamii*), a rare and threatened species is also present in the area. Both human and wildlife are threatened by the toxic chemicals (some of them carcinogenic) as a result CSG extraction. The Valley is mainly productive farmland.



The process of fracking has many very serious dangers, both to human health and the natural environment in general.

There is evidence that drinking water can become dangerous to human health as a result of fracking, due to toxic chemicals leaching (leaking) into underground water during the fracking process. Some human deaths have been reported in the USA as a result of contaminated drinking water.

A great many Australians are now aware that they could be invaded by mining companies who have licenses to mine on their land, with no real power to stop them entering and despoiling their land and endangering water supply with toxic chemicals and producing large quantities of strong saline water which cannot be safely disposed of.

I would ask you to read Sharyn Munro's book entitled "Richland Wasteland"\*\*. Should you not be able to do this, your Deputy Premier and all your advisers should have this book on their essential reading list.

In the USA there is much evidence from several years of CSG mining that it is very seriously dangerous.

I earnestly hope that you will abide by your previous statements now that your Party is in Government, and are not going to allow the mining companies to ride roughshod over landowners in any part of Queensland, not just the Scenic Rim. This is not the impression that I get from your Deputy Premier.

The so-called strict control regulations that the mining companies are supposed to comply with are often ignored and sometimes deliberately broken, and "mistakes," admitted by them largely results with a slap on the wrist from the Regulators.

CSG is not a local issue, but a major one affecting the lives of Australians and the Environment, not just in Queensland, but many other States.

Yours sincerely,



\*\* Richland Wasteland by Sharyn Munro pp 453, Published by Pan Macmillan Australia 2012, ISBN 978-1-7426-1099-3

## Sarah Partosh

---

**From:** [REDACTED] s.73 Personal Information [REDACTED]@hotmail.com>  
**Sent:** Thursday, 13 September 2012 2:31 PM  
**To:** The Premier  
**Subject:** FW: Coal Seam Gas

Dear Premier,

As you know, we are having trouble with gas companies in the bush as they search for CSG, especially in respect of compensation for land usage. I am one of them. As I am currently negotiating through lawyers with a company I am keen to know what the status is with regards to the election campaign statement regarding set costs you intended placing on the companies to "level the playing field" so to speak.

In respect of this I have been trying for some time to get an update/reply from the Minister for Natural Resources and Mining, Mr. Cripps, I have also copied Mr. Hobbs, Member for Warrego. To date I have had no reply back from either of them.

Copies of correspondence I have sent to Mr. Cripps are attached.

Can I have a response please?

Yours sincerely,  
[REDACTED]

---

**From:** [REDACTED]@hotmail.com  
**To:** andrew.cripps@qld.gov.au  
**Subject:** FW: Coal Seam Gas  
**Date:** Mon, 10 Sep 2012 11:06:43 +1000

Dear Minister,

Below is correspondence that I have previously sent to you, and am still awaiting an acknowledgement to, let alone a response. Your silence is deafening! The landowners in the bush would really appreciate a fair go financially, and I am one of them.

Question 1; is the LNP still keeping to its election promise with regards to compensation, or are you just going to let us voters suffer at the hands of the gas companies who seek a massive profit (Greed) from the use of our land?

Question 2; Are you still a united party, or has the Liberal block taken over, reducing your campaign promises to non core voter propaganda?

No reply within 48 hours, setting out your policy, will mean this whole list of emails goes to the premier. Now that is a promise, and not a campaign one.

Yours sincerely,  
[REDACTED]

---

**From:** [REDACTED]@hotmail.com  
**To:** andrew.cripps@qld.gov.au  
**Subject:** FW: Coal Seam Gas  
**Date:** Wed, 1 Aug 2012 09:05:07 +1000

Dear Mr Cripps,

Below is an email I sent to you on 24th July regarding the new laws you were putting into place with regards to compensation paid to landholders.

[REDACTED] I am now being pressured to respond, (favourably no doubt), to QGC. Before doing so, we would appreciate your response to the points we have raised in the attache demail.

We have 20 days to settle in good faith, and we are halfway there now.

I look forward to hearing from you.

Yours sincerely,

s.73 Personal  
Information

---

From: [REDACTED]@hotmail.com  
To: andrew.cripps@qld.gov.au  
Subject: Coal Seam Gas  
Date: Tue, 24 Jul 2012 13:26:17 +1000

The Honorable Minister

Dear Mr. Cripps,

I am a landholder with a bush block that QGC has chosen to place a CSG well on. I have exchanged correspondence with Howard Hobbs about the matter as I feel the landowners are not getting a fair deal under the current legislation provided by the previous government.

[REDACTED] got the compensation agreement delivered to us. The respective paperwork is the Standard Conduct and Compensation Agreement Petroleum and Gas (Production and Safety) Act 2004. We have been offered the princely sum of [REDACTED] for the upfront payment, and [REDACTED] as Annual Payment Compensation. This we feel is insufficient for what their use of our land means to our future plans for it.

From information readily placed in the media, I have calculated that the company will obtain \$438000 worth of gas from this well at normal flow rates. So their offer of [REDACTED] is only 0.342% of what they are making from it. This is a joke. Not a great return for the landholder on an investment. To add insult to injury they value the land at [REDACTED] less than the rateable value, and this gets me a good deal!

During the election campaign your party policy was to make set payments for each step of the process as follows;

1. \$10,000 for an exploratory well
2. \$15,000 for a production well
3. \$6,000 per annum rental per well.

What is the current status with regards to your legislation to replace the above mentioned act, and replace it with one that more readily recognizes your intentions? We would clearly prefer to deal under that legislation.

We realize that there is not much we can do about things as they stand, and they can go ahead if they so desire, but we do feel we are not being treated well compensation wish. In addition, our block on Kumbarilla Lane is located between an arable block to its western boundary, and on the other side of the lane is a nature reserve which they may not be able to drill on, so our place has some strategic value to them. In fact if they have to, we are prepared to assist by saving the arable land, and having a second well placed on our block.

From a telephone conversation I had with their rep, I understand that the paperwork for many contracts was delayed, (ours since February), and is just now going out. Maybe they are trying to beat your new bill?

I look forward to hearing from you.

Yours sincerely,

[REDACTED]

**Sarah Partosh**

---

**From:** [REDACTED] s.73 Personal Information [REDACTED]@hotmail.com>  
**Sent:** Friday, 14 September 2012 1:18 PM  
**To:** The Premier  
**Subject:** RE: Coal Seam Gas

Dear Mr. Newman,

My postal address is;

[REDACTED]

Thank you,

[REDACTED]

---

**From:** The.Premier@premiers.qld.gov.au  
**To:** [REDACTED]@hotmail.com  
**Date:** Thu, 13 Sep 2012 14:44:15 +1000  
**Subject:** RE: Coal Seam Gas

Thank you for your email to the Honourable Campbell Newman MP, Premier of Queensland. We confirm receipt of your message. If you would like to provide an opportunity for the Premier to respond, please email back with your postal address and your correspondence will be actioned as appropriate. We appreciate the time you have taken to contact our office.

**Ministerial Officer**  
**Office of the Premier**

---

**From:** [REDACTED]@hotmail.com]  
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**To:** The Premier  
**Subject:** FW: Coal Seam Gas

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Can I have a response please?

Yours sincerely,

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To: [andrew.cripps@qld.gov.au](mailto:andrew.cripps@qld.gov.au)  
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To: [andrew.cripps@qld.gov.au](mailto:andrew.cripps@qld.gov.au)  
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We have 20 days to settle in good faith, and we are halfway there now.

I look forward to hearing from you.

Yours sincerely,  
[REDACTED]

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From: [REDACTED] @hotmail.com  
To: [andrew.cripps@qld.gov.au](mailto:andrew.cripps@qld.gov.au)  
Subject: Coal Seam Gas  
Date: Tue, 24 Jul 2012 13:26:17 +1000

The Honorable Minister

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[REDACTED] I got the compensation agreement delivered to us. The respective paperwork is the Standard Conduct and Compensation Agreement Petroleum and Gas (Production and Safety) Act 2004. We have been offered the princely sum of [REDACTED] for the upfront payment, and [REDACTED] as Annual Payment Compensation. This we feel is insufficient for what their use of our land means to our future plans for it.

From information readily placed in the media, I have calculated that the company will obtain \$438000 worth of gas from this well at normal flow rates. So their offer of [REDACTED] is only 0.342% of what they are making from it. This is a joke. Not a great return for the landholder on an investment. To add insult to injury they value the land at [REDACTED] less than the rateable value, and this gets me a good deal!



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I look forward to hearing from you.

Yours sincerely,

s.73 Personal  
Information

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This email is intended only for the addressee. Its use is limited to that intended by the author at the time and it is not to be distributed without the author's consent.

Unless otherwise stated, the State of Queensland accepts no liability for the contents of this email except where subsequently confirmed in writing. The opinions expressed in this email are those of the author and do not necessarily represent the views of the State of Queensland. This email is confidential and may be subject to a claim of legal privilege.

If you have received this email in error, please notify the author and delete this message immediately.

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Released under RTI - DPG

**Sarah Partosh**

---

**From:** Premier <premier@ministerial.qld.gov.au>  
**Sent:** Tuesday, 18 September 2012 10:30 AM  
**To:** The Premier  
**Subject:** FW: please stop coal seam gas, its poisoning kids

**From:** [REDACTED]@gmail.com  
**Sent:** Tuesday, 18 September 2012 10:09 AM  
**To:** Premier  
**Subject:** please stop coal seam gas, its poisoning kids

**Dear Campbell Newman, MP**

Premier - Responsible for the overall management of Queensland, Cabinet, coordinating government communication, policy development, Parliamentary Counsel, Governance, protocol and intergovernmental relations, and overall public service management.

It doesn't take a person much to see, if only we study coal seam gas for a few hours, we would come to the realization that this may very well be the end of any healthy living within the areas to which the CSG mining takes place. It is very obvious that if only more money be spent these very unsafe conditions would instead be satisfactory and that coal seam gas should be avoided and stopped at any cost. I cannot believe that any politician would not know about one of the worst things that Australia faces to date and why they would not pursue the safety of their citizens over money earned from large mining corporations. Will you be the first to show the whole community that is fighting these deadly toxins from being implanted into their backyards. Will you be the first to help the poisoned children that seem to bleed if they are required to come home. Nothing would be more UN-australian if you were to look the other way instead of trying at least to find out for yourself if indeed these circumstances will become dire after 60,000 more wells are introduced around Australia.

Please consider my words as we are all waiting for your response. **Campbell Newman**, when you are no longer in government.... Do you think about your legacy? Do you think that all your actions are not remembered by all of us that care. By all the children and their families that are waiting and watching for you, **Campbell.... Newman**. Please help them.

I write this with the deepest concern with no matter what you decide to do.

I was wondering if you have watched 'gas land'. I have, and it's most alarming. We have now passed the line between caring about human life on the planet, over money made. Care more about conveniences, than the planet itself. Surely you know where the future is headed if this continues. Surely you realize that the people with power are the only ones that can do anything. This means you. Watching these documentaries and reports by environmentalists makes me break down and weep. I will give my very life in response to the stop of coal seam gas extraction.

My name is s.73 Personal Information

[REDACTED]. I am just a single citizen of Australia and the coal seam gas doesn't even effect me directly just yet. If a person like me seems to care so greatly about this danger, then don't you think something should be done? Not tomorrow, or next week. Not too late... when people are losing their sense of smell, or can't leave a bed from chronic headaches. That is what will come from these poisons that are allowed to be released on an Australians own private property.

What has the energy *corporation* become? If the idea that this continues... it would fall down in time to be related to such things like terrorism, or Hitler. But even they we're not fueled by something that didn't propose one organization become richer than the next. They we're fueled by fear. And this poison, this coal seam gas extraction... That releases enough toxins to destroy our Murry darling basin. This is fueled by money. Something I think that is much pettier than fear. It is greed. I myself, think 'what will they think of us?', when they realize we have left them with nothing but toxic waterways and poisonous food. What will they think of you? I already think of America this way due to watching 'gas land' and now unfortunately my own country Australia. We have sold ourselves out. You have... the parliament of our once great nation.

Friends and I said, "gas land wouldn't happen here". It can't. Considering we are the nanny country. Considering all the things the law preaches here. The fines we receive if we jeopardize each other's safety. The massive amount of penalties and limitations you pile onto us as we try and survive is truly amazing. While you turn around and pass over rights to slowly kill us. This brings me to tears.

Please do everything you can to stop the coal seam gas extraction now before it kills more animals, poisons more Innocent people and destroys the murry darling basin. The question is now... what will your legacy be known for?

Yours truly

s.73 Personal Information

an Australian citizen from [REDACTED]

This email, together with any attachments, is intended for the named recipient(s) only; and may contain privileged and confidential information. If received in error, you are asked to inform the sender as quickly as possible and delete this email and any copies of this from your computer system network.

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Unless stated otherwise, this email represents only the views of the sender and not the views of the Queensland Government.

Please consider the environment before printing this email.

Released under RTI - DRC

2/10/12

THE PREMIER  
 P.O. BOX 15185 CITY EAST,  
 QUEENSLAND 4002.  
 RE. Mc/Nc - TF/12/17957  
 DEAR PREMIER NEWMAN

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Date	5 OCT 2012	in
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' ON BEHALF OF MY [REDACTED]  
 FAMILY AND FUTURE GENERATIONS I THANK  
 YOU FOR YOUR WISDOM AND FORESIGHT IN  
 RULING OUT COAL MINING AND COAL SEAM GAS  
 EXTRACTION IN THE SCENIC RIM REGIONAL  
 COUNCIL AREA.

WE WERE VISITING THE AREA  
 WHEN THE RESIDENTS RECEIVED THEIR  
 LETTERS AND THEY WERE ECSTATIC ABOUT  
 THE DECISION.

MIGHT I TAKE THIS OPPORTUNITY  
 TO CONGRATULATE YOU ON THE WAY YOU  
 ARE MANAGING THE STATE OF QUEENSLAND.  
 THERE WAS A LOT OF DEAD WOOD  
 RUNNING A LOT OF SHOWS WHICH YOU  
 HAD THE GUTS TO DO SOMETHING ABOUT.  
 MAYBE NOT POLITICALLY CORRECT TO STATE  
 IT, IN QUITE THIS MANNER, BUT IT IS MY  
 SENTIMENTS. KEEP UP THE GOOD WORK!

YOURS SINCERELY,  
 (MRS) [REDACTED]



# PREMIER'S BRIEFING NOTE

Policy

Tracking Folder No. TF/12/26792

Document No. DOC/12/191177

**To: THE PREMIER**  
**Date: 4 October 2012**  
**Subject: Protecting the Scenic Rim area from Coal Mining and Coal Seam Gas (CSG) extraction.**

Approved / Not Approved / Noted

Premier .....

Date ...../...../.....

Date Action Required by: ...../...../.....

Requested by: .....  
(if appropriate)

## • RECOMMENDATION

It is recommended that you:

- **note** that unless holders can be convinced to voluntarily relinquish their interests, removal of existing coal and CSG extraction tenures in the Scenic Rim Regional Council (SRRC) area would require legislative amendment.
- **note** that the Deputy Premier and Minister Cripps have agreed on a process for identifying where in the SRRC area mining and CSG extraction would be "inappropriate".
- **note** that if the Ministers' approach is adopted, any public statement that categorically rules out coal or CSG extraction in the SRRC area could expose the Government to challenge from existing tenure holders.

## • KEY ISSUES

- The Government has made an election commitment to "fast track a revised land use plan for the Scenic Rim to rule out mining and coal seam gas extraction in areas deemed to be inappropriate" [emphasis added].
- At present there are a number of coal and CSG exploration and mining tenures, and applications for tenures, in the SRRC area – including two Mineral Development Licences (see **attachment 1**).
- Forcible removal of existing granted tenures would require legislation. Such legislation could also "sterilise" the SRRC area from future extraction activities. However, it would undoubtedly be strongly opposed by the mining sector (citing sovereign risk arguments) and by companies that have spent money in the region.
- The Mines Minister cannot refuse an application for an exploration permit on public interest grounds but he can refuse an exploration permit renewal and grant of a mining lease or petroleum licence.
- However, there is a risk of legal challenge, particularly if a company has spent a significant amount of money, and grounds for refusal need to be soundly based.
- The Deputy Premier and Minister Cripps have agreed that the safest non-legislative approach to delivering the election commitment has the following steps:
  - o A policy statement by the Mines Minister that:
    - no higher forms of tenements or tenure (*mineral development licence or mining lease / petroleum lease*) applied for within the Scenic Rim area will be granted by Government until a land use plan has been developed for the Scenic Rim area that addresses resource activities; and

- condition both grants and renewals of Exploration Permits with a two year renewal period; a compulsory reduction in the area of the EP (50 per cent) at the end of the two year period (to allow tenure areas that overlap the scenic rim to be reduced); and only 'preliminary activities' to be undertaken in this two year period.
- A land use plan, to be completed by mid-2013, which identifies the values of the area and identifies where mining is not appropriate or otherwise.
- Voluntary relinquishment of tenures by their owners or a decision by the Minister to refuse grant or renewal of higher mining tenures on public interest grounds confirmed by the land use plan.
- DPC supports the Ministers' approach as it is consistent with the election commitment, and provides a comprehensive policy and planning based approach which will avoid arbitrary legislation and possible claims of compensation by the industry for revoked rights. A policy based approach balances the needs of industry and the community whilst providing the necessary certainty to all.
- However if this approach is adopted, any public statement at this stage that categorically "rules out" all coal mining and CSG extraction in the SRRC area would pre-empt decisions that need to be made by the Deputy Premier (in approving the plan) and Minister Cripps (in deciding on the public interest). It could expose the Government to legal challenge from current tenure holders and is therefore not recommended.

Jon Grayson  
Director-General

**Comments** (*Premier or DG*)

12 October 2012

Mr C K T Newman MP  
Premier  
Member for Ashgrove  
Parliament of Queensland  
Brisbane, QLD, 4000

Dear Premier

**Subject: Inaugural APPEA CSG Conference Success**

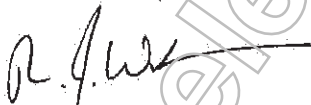
Last week, the Australian Petroleum Production & Exploration Association (APPEA), the peak industry body for the Australian oil and gas industry, hosted the inaugural CSG Conference and Exhibition at the Brisbane Convention Centre.

The CSG conference, the largest yet held in Australia, was well attended by industry leaders, politicians and over 600 delegates who heard from stakeholders, including farmers and landholders, about growth in their businesses and the regional economies.

In the first half of this year, another 7000 people were employed in the Queensland gas industry bringing the workforce to more than 18,500. We are excited about this growth in jobs and with the right policy framework, this looks set to continue.

I have attached for your information some recent media coverage of CSG related issues which I hope you find of interest. Please do not hesitate to contact me if you have any questions about the industry and feel free to explore our website [www.wecantcsg.com.au](http://www.wecantcsg.com.au) for further information.

Yours sincerely



Rick Wilkinson  
CHIEF OPERATING OFFICER, EASTERN AUSTRALIA

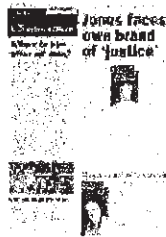
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HEAD OFFICE  
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F +61 2 6247 0548  
E [appea@appea.com.au](mailto:appea@appea.com.au)  
ABN 44 000 292 713

BRISBANE OFFICE  
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E [brisbane@appea.com.au](mailto:brisbane@appea.com.au)

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Level 1  
190 St Georges Tce  
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Cloisters Square  
WA 6850  
T +61 8 9321 9775  
F +61 8 9321 9778  
E [perth@appea.com.au](mailto:perth@appea.com.au)



Courier Mail, Brisbane  
09 Oct 2012

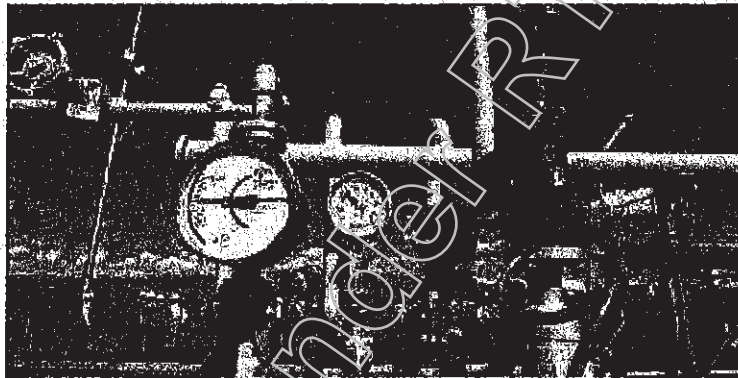
Editorials, page 18 - 141.01 cm<sup>2</sup>  
Capital City Daily - circulation 189,735

ID 185570182

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**TUESDAY**  
09.10.12

**The Courier Mail**



## Gas not so on the nose

THE coal seam gas sector will take heart from new polling which shows a growing approval among Queenslanders for the resource. The polling was commissioned by the Australian Petroleum Production and Exploration Association and carried out by respected pollsters Crosby Textor. The increasing acceptance in Queensland is different to New South

Wales, where a more fledgling debate has been strongly affected by CSG opponents.

The CSG sector has struggled to broadcast its claims that CSG is safe and well-managed. Some of this has been due to the sector's own defensive attitude. Queenslanders have always proven they are up for serious debates about complex issues.

Released Under RTI



Courier Mail, Brisbane  
09 Oct 2012, by John McCarthy

General News, page 11 - 119.46 cm<sup>2</sup>  
Capital City Daily - circulation 189,733 (MTWTFSS-)

ID 165572325

PAGE 1 of

# Rich rewards displace gas industry fear

John McCarthy

THE public backlash over mining and coal seam gas is waning, with its economic and employment benefits finally winning over a sceptical public.

It follows years of concern about the impact from mining and coal seam gas on the environment. Much of the debate has fallen away in recent months as the mining boom and coal developments eased off and activists like the Lock the Gate Alliance concentrated on NSW, where it was having more success.

A gas industry-commissioned poll by Crosby Textor said since February, those who said they gave CSG total support had jumped from 48 per cent to 53 per cent while those totally opposed fell slightly to 41 per cent.

The rise is significant because Crosby Textor said that previously, the industry's message about the benefits of CSG was being shunned by the public.

The reasons for supporting CSG were jobs (30 per cent)

and the economy (27 per cent) with the industry investing about \$45 billion and creating about 18,000 jobs.

Public concerns over the loss of farmland because of CSG had dropped sharply since a previous poll in February but environmental and water issues were still the biggest worry for Queenslanders.

About 32 per cent of those who opposed CSG raised water contamination and the prospects of chemicals reaching the environment as the main reason. It appears the Australian Petroleum Production and Exploration Association's botched advertising which wrongly claimed the CSIRO said there was no risk from CSG to groundwater had not had much of an impact.

"Water is still the top reason to oppose CSG but is morphing into more generic environmental concerns. Similarly, land conflicts are changing into land rights," according to Crosby Textor.

Editorial) P18





# CSG has made a powerhouse of Qld

## Industry employs 18,000 while NSW languishes

By OWEN JACQUES, APN

BENEATH the pom-pom waving for coal seam gas at the industry's first dedicated conference held in Brisbane, there appeared to be a simmering jealousy as NSW looked on with awe at Queensland's progress.

Both states have potentially huge gas reserves but Queensland has projects afoot from the Surat Basin near Toowoomba to Gladstone and throughout Central Queensland.

Resources Minister An-

drew Cripps said the industry employed 18,500 even though the sector would not export refined coal seam gas - which becomes liquefied natural gas - until late 2014.

"A massive 88% of the near 6000-strong construction workforce on Curtis Island (in Gladstone) are Queenslanders," Mr Cripps said.

"Queensland's companies have also benefited from this investment by winning supply contracts worth about \$6 billion."

Meanwhile in NSW, just 200 are employed in the in-

dustry. Resources Minister Chris Hartcher said he wanted to see the state follow Queensland's lead.

"New South Wales clearly has a long way to go if it's going to successfully and responsibly develop its CSG," he said.

"Queensland has advanced and we wish to follow that level of advancement."

Gas firms face loud and powerful opponents in the form of Lock the Gate campaigners.

Federal Resources Minister Martin Ferguson told the

conference the much-maligned industry had to earn a "social licence" to operate, something relying on the goodwill of the communities they access.

Protesters outside the conference shared that view.

Protest organiser Scott Sledge said they were showcasing the views of the Australian majority he believed were against CSG mining.

"Essentially, we are here to show (companies) do not have a social licence to mine in Australia," he said. The conference ends today.

Released

# CSG: mistakes, we made a few

By TROY ROWLING

MUCH has been written in recent years about the unlikely coalition between farmers and environmentalists in opposition to the expansion of the coal seam gas industry across rural Queensland.

But is a subtle changing of the tides taking place?

The gas industry certainly thinks so, with claims of an improving relationship between landholders and the resource sector a major focal point of the inaugural Australian Petroleum Production and Exploration Association (APPEA) CSG conference at the Brisbane Convention Centre this week.

With food and energy security concerns dominating policy debate around the globe, an olive branch of sorts has been extended to the Queensland gas industry, with agriculture groups telling *Queensland Country Life* there is "growing confidence" among farmers on some issues surrounding coexistence.

This acknowledgement is a far cry from just 18 months ago, when rural Queensland was mobilised on an almost unprecedented scale in opposition to the CSG project rollouts.

The election of the Newman Government has proven a significant turning point in the debate, with many of the early policy initiatives to tackle the coexistence concerns, spearheaded by Deputy Premier Jeff Seeney and Mines and Natural Resources Minister Andrew Cripps, welcomed by landholders who had grown weary of the attitude of the former Bligh government.

Outgoing AgForce president Brent Finlay, who addressed the conference on

Wednesday, told *Queensland Country Life* there had been a significant decrease in the number of concerned landholders contacting the rural lobby group offices in recent months as the improving regulatory regime takes hold.

"There has also been a significant change by the gas companies in how they go about dealing with landholders," he said.

"I believe the companies want to now work with landowners rather than simply run over the top of them. Not so long ago there was a knock on the door and the gas industry representative was standing there and the drilling rig was already set up inside the front gate and ready to go."

"It was almost a legislation-free zone two years ago. There was no respect or acknowledgment of the landowner - they were just expected to get out of the way."

"But I believe there has recently been a significant maturing between the two industries."

APPEA chief executive David Byers used his conference address on Tuesday to affirm the CSG sector was making a concerted effort to learn from past mistakes, and promote ethical and responsible business practices which supported rural communities.

"There is no denying that some behaviour during the early years of CSG exploration and development in Queensland could be likened to a skin that the industry collectively is finding hard to shed - but nor should there be any doubt about our determination to regain the trust of landholders and to demonstrate how well we can now manage our com-

munity relationships," he said.

"Today's industry understands that ongoing demonstration of safe, responsible and sustainable operations by every individual and all APPEA's member companies is what truly matters."

The environmental movement made its presence felt at the conference, with Lock the Gate president Drew Hutton leading a small gathering of Brisbane-based protesters outside the convention centre to air their continued objections to the industry, with a strong police presence keeping a close watch over the rally.

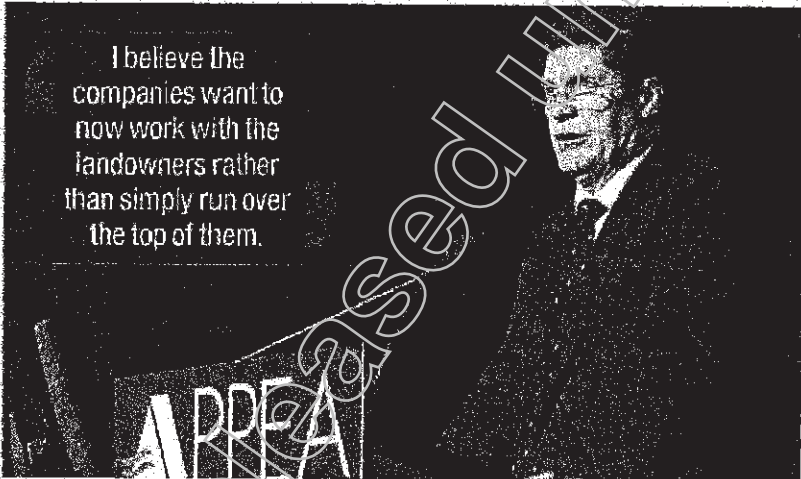
However, Mr Byers dismissed the cries of the protesters, telling the conference that the environmental movement refused to acknowledge that industry was working with farmers for mutual benefit.

"Of course, the work of professional activists, like some outside this building, will also continue, but this should be seen for what it is - background noise," he said.

"While demonstrators may still attract media attention, the efforts of the farming community and our industry to find common ground are passing them by. In modern Australia, farmers are stewards of huge tracts of land and we respect this. The history of agriculture and of the resources industries demonstrates how much common interest we share. It's no longer a question of can CSG production and agriculture co-exist? It is a reality."

NSW Minister for Resources and Energy Chris Hatcher told the confer-

I believe the companies want to now work with the landowners rather than simply run over the top of them.



LEFT: APPEA chief executive David Byers said the CSG sector was learning from past mistakes with landholders.

ence the O'Farrell Government's recently lifted 18-month freeze on new gas licences, while difficult for the resource sector, had achieved its intention of providing a stronger regulatory footing for the CSG industry.

He said "irresponsible debate" contributed by the green movement had distorted the facts and figures surrounding CSG in Australia.

"However, industry needs to get out there and sell the message. If I can be brutally honest, one of the biggest problems in the resource sector has not solved the

industry, and it has created a vacuum which has been quickly seized upon by the greens movement," he said.

"Unless truth is properly promoted, there will continue to be a large degree of irrational and uninformed debate."

Basin Sustainability Alliance spokesman Wayne Newton told *Queensland Country Life* that while there was "growing confidence" among landholders over some issues surrounding coexistence, ongoing concerns over the potential threats to groundwater would hamper further efforts to improve relations between the sectors.

"The LNP Government has come in with a mandate to bring about a lot of change, and they have certainly set about bringing in new rules. A lot of the changes they are bringing in are definitely better than the previous legislation," he said. "However, we still have ongoing and never-ending concerns about water resources, which no one can guarantee won't be impacted if the CSG industry goes ahead at its proposed rate."

# Bridging farm, mining divide



By **TROY ROWLING**

In Toowoomba  
(07) 4633 9901

The next 12 months will likely be a decisive period in the State Government's effort to bridge the farmer-miner divide.

The Newman Government will enact several major legislative initiatives in the coming months, including the land access framework, with the government currently considering the outcomes from public consultation; regional statutory plans for the Darling Downs and Central Highlands, with local committees currently sorting through community concerns; and a revised CSG water management strategy, which is expected to be brought to Parliament by the end of the year.

State Natural Resources and Mines Minister Andrew Cripps told the APPEA conference on Tuesday the legislation was designed to promote coexistence and restore community trust in the gas industry.

The final and arguably most contentious major CSG project in Queensland - Arrow Energy's

multibillion dollar project which controversially includes resource activities over intensive and highly productive farmland on the Darling Downs - is yet to receive both government approval, as well as a final investment commitment from the company, which is also expected in 2013.

Mr Cripps told the APPEA conference that legislation already enacted by the Newman Government, including the ability for gas companies to register pipelines as easements on land and transport CSG water across multiple tenures, had reduced the intended infrastructure impacts on agricultural regions and enabled gas companies to reduce costs.

"As an example, as a result of the amendments we have put through parliament, QGC has announced the 37 water-treatment and associated brine ponds it had previously planned to construct can now be reduced to just three water-treatment plants and one centralised brine facility - a much smaller footprint for this project that will involve much less vegetation clearing and much less of an impact on landholders," he said.

Mr Cripps said the revised CSG water-management policy

would provide direction on the management of salt and how CSG water must be managed.

He said the draft strategy would align legislation with LNP policy, including aquifer reinjection as a preferred option in certain areas and the phasing out of evaporation ponds as an approved water disposal method in CSG production. The strategy will be opened to public consultation later this month.



Andrew Cripps

Mr Cripps used the conference to announce a new competitive cash bidding process for companies seeking the right to explore on highly prospective coal, petroleum and gas resources tenements in Queensland.

He said the new framework would involve the controlled and competitive release of land for coal, petroleum and gas exploration, and may include a cash-bidding process which reflected the potential in-ground value of the resource for certain areas that are released.

Mr Cripps said the process would discourage exploration permits being acquired and ware-

housed to be marketed and sold to international buyers with little or no geological data to support the asking price.

Mr Cripps said landholder rights would not be impinged on by the new cash-bidding framework.

He said all current requirements associated with land access, conduct and compensation would still apply.

Though, while agriculture groups have welcomed the increased regulation, aspects of the statutory rollout have concerned the resource sector that it could threaten its competitiveness in the international marketplace.

The gas industry claims Australia's strong dollar, rising labour and compliance costs are adding to the pressures, with competi-

tion from lower cost countries causing investors to think twice about Australian LNG.

Earlier this year, QGC and Santos announced cost blowouts of \$US5 billion and \$US2.5b respectively for their Queensland projects.

APPEA chief executive David Byers warned the conference on Tuesday that governments must remain level-headed about imposing standards to meet community requirements that are anchored in sound science, and not "go overboard in pursuit of populist applause".

He said while the Australian industry wrestles with the intricacies of overlapping and duplicated regulation, rival countries were preparing to ship LNG into Asia and other markets.

Mr Byers said any legislative framework that required CSG-produced water to be treated to a higher standard than the local town water supply before it can be used for dust suppression had "gone too far".

"It is not crying wolf to assert that this country is now in danger of losing its competitive edge," he said.

"This is an industry that should be embraced as a creator of national wealth - not a 'hollow log' for wealth redistribution."

**This country is now in danger of losing its competitive edge.**

FILE - DPC



# Balance is essential

AGFORCE has always recognised the development of the resources sector in Queensland. We understand the importance of the revenue, royalties, employment and infrastructure mining brings the State's economy.

However it has been vital to ensure the rights of agriculture and Queensland's primary producers are highlighted and the fundamental importance of the rural sector is balanced with that of mining. We have tried to maintain a balanced approach to coexistence while recognising the significant concerns that primary producers have in relation to resource industries and implications for their business, lifestyle and community and environmental impacts. This journey has already been a long and winding road and with the Australian Petroleum Production and Exploration's Oil and Gas Conference being held in Brisbane this week it's timely to review where this delicate balancing act stands.

There are a number of positives. Over the course of the past two years there has been a visible improvement in CSG company engagement with primary producers; there has been more equity in terms of fairer outcomes for landholders and we have certainly witnessed more open discussion about conduct and compensation agreements (CCA).

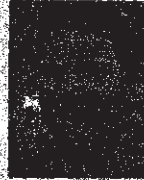
Part of these successes can be directly attributed to CSG companies employing solid engagement practices from the beginning of negotiations in addition to education programs that ensure all parties are informed, such as those provided by AgForce projects. Despite this, many challenges remain that will require continued leadership from our organisation and some change of tact from the resources sector.

More detailed information is needed surrounding the extent of CSG activities given the substantial gap between what the resources industry has said would be the

## COMMENT

**BRENT FINLAY**

AgForce  
president  
(07) 3236 3100



impact of its actions on the agricultural industry and associated communities and the eventual reality of these considerable collective impacts.

Environmental concerns are also front and centre with agriculture particularly looking for more certainty around water security. A sound review of water policies, as is currently occurring, is essential to providing security for this precious resource.

We must also insist compensation is analysed at a property/business level and ensure adequate control over contractors

while they are on-property.

There are, of course, many more issues arising from the resources-agriculture interface, however for now our efforts must focus on continuing to facilitate engagement between the parties. Ensuring equity and review of collaborative impacts within conduct and compensation agreements is important as is closely looking at long-term environmental impacts and making sure these have been fully researched, understood and addressed. We must also continue to find solutions to regional impacts and ensure continued education is available for stakeholders.

While none of these will be easy, they are essential to giving the rural and resources sectors the best possible chance of coexistence and the state of Queensland the best chance of benefiting from both while ensuring the health and vitality of our natural systems survive.

## Catching up at Meandarra



AgForce Grains president Wayne Newton catches up with Jennifer Crocker, Muckadilla branch, at the recent SQ Regional Meeting in Meandarra.

Rele



OPINION

# Finally, signs the tide is turning in CSG-community conflict

They often said the resource sector is not used to having eight hours. But in the roll-out of the most significant infrastructure project since the Snowy Mountains complex more than 60 years ago, CSG companies are being ever further into the everyday lives of rural communities as the activities cross state lines and roads from Roma to Rockhampton.

The coal seam gas industry has dedicated much of this week's APPEA conference in Brisbane to declaring its continued dedication to earning its social licence.

But while the gas sector believes it is improving relations, rural leaders have used the conference to warn that it may not be addressing the uncertainty surrounding industry

## QUEENSLAND Country Life

development and not a special at the cost of communities.

Gasfields commissioner John Cotter says the tide is turning.

Before the establishment of the Commission, public perceptions about CSG, whether true or untrue, were not adequately dealt with by government or the resource sector, he told the conference.

Mr Cotter said the CSG industry must better understand what makes rural communities tick and take an active role in the regions.

"There is an enormous opportunity created not offered, but

also an enormous amount of uncertainty," he said. "People in regional communities don't know what the industry means to them."

"There are 3000 landholder agreements that have been signed and a whole range of activities have progressed but still an enormous amount of uncertainty."

"You sit in a large room in regional Queensland and people ask where we are going to be in five or 20 years?"

"That question has to be answered. Regional communities should be included in the benefits the industry offers and should not be there at the cost of it."

Former Gunnedah mayor Adam Marshall said the gas sector, as a new

regional player, still had to earn the respect of communities.

"You not only have to be an expert in what you do, but you must also know what your impact is going to be on the existing community," he said.

"We might be asking more of your industry than other businesses are expected to do, but that is the reality."

"We are looking at a community beyond your presence in it and we need to make sure we still have a community at the end of it."

Western Downs Mayor and Gasfields commissioner Ray Brown asked what the industry wanted to leave behind as its legacy.

"I said 19 of the 23 towns in the

Western Downs council region relied solely on underground water and science must be assured to not impact on the environment.

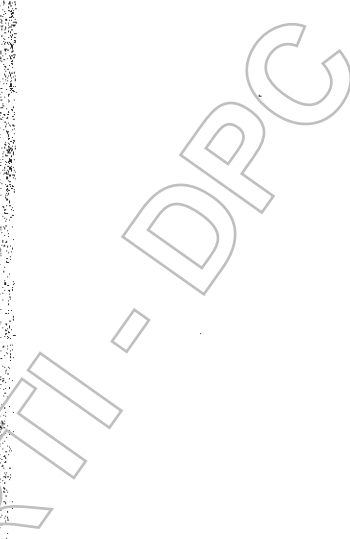
Young farmers faced an uncertain future due to recent natural disasters and rising labour and living costs due to resource sector expansion.

"When we ask for a full report we want a full report and not just to government but also to the landholder to tell them it is not going to happen again," he said.

"We are only here for a short time. We need to make sure it is secure for future generations," he said.

"Don't get blinded by the money, you need to protect the people and the environment."

"I take the community with you."





## Media Clippings: Inaugural APPEA CSG Conference, October 2012

**ABC TV News Qld, 7pm, October 10 2012, Eric Tlozek**

CSG industry is promising a better deal for landholders and rural communities as it prepares for large scale expansion in Queensland, but overregulation and higher development costs are holding the industry back.

VIDEO: <http://www.abc.net.au/news/2012-10-09/qld-government-plans-tender-process-for-csg-exploration/4303348>

**ABC Rural, October 9 2012, Caitlyn Gribbin (AUDIO)**

Caitlyn Gribbin interviews APPEA CEO David Byers about the Queensland Government's new cash-bidding system for oil and gas exploration.

AUDIO: <http://www.abc.net.au/rural/news/content/201210/s3606722.htm>

**ABC Radio New England North West (Tamworth) October 10 2012 12.32pm**

Minister Chris Hartcher predicts a bright future for the coal seam gas industry in NSW. He says the Government aims to double household gas connections by 2020. The Government plans to cut red and green tape to kick-start more exploration and quickly to boost production before the last supply contracts expire in 2017.

AUDIO: <http://www.wewantcsg.com.au/media/radio>

**ABC Radio Riverina (Wagga Wagga) October 10 2012 6.33am**

The State's Resources Minister Chris Hartcher has told a coal seam gas industry conference in Brisbane the Government wants to ramp up CSG exploration and production in NSW. He compared the booming CSG industry in Qld, which has 18500 employees, to New South Wales where just 330 people work in the industry.

AUDIO: <http://www.wewantcsg.com.au/media/radio>

**NSW wants to emulate Queensland CSG production**

ABC New England North West Wed Oct 10, 2012 12:07pm AEDT

<http://www.abc.net.au/news/2012-10-10/port-pearce/4304474?&section=news>

## Sarah Partosh

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**From:** donotreply\_webcontactform@cabinet.qld.gov.au  
**Sent:** Wednesday, 17 October 2012 7:27 PM  
**To:** The Premier  
**Subject:** Coal Seam Gas Industry

**Importance:** High

Cabinet Contact email for Campbell Newman MP Premier

**Subject:** Coal Seam Gas Industry  
**Title:** Ms  
**First Name:** [REDACTED] s.73 Personal Information  
**Family Name:** [REDACTED]  
**Email:** [REDACTED]@hotmail.com

**Address:** [REDACTED]  
**Town:** [REDACTED]  
**State:** [REDACTED]  
**Postcode:** [REDACTED]  
**Email:** [REDACTED]@hotmail.com

**Comment:**

Dear Premier, I draw your attention to 3 comments from yesterday & today's Lock The Gate Alliance facebook page. We deserve real answers please, not just more "creative" spin from government/industry .

1. Here is a question from Rob Rimmer yesterday:

" Seriously, I'd like to ask one key question: WHERE'S OUR TRANSITION? In Queensland at least we were sold a gas industry on the strength of its value as a transition fuel from coal to renewables... So... as Curtis Island disappears into an industrial apocalypse, as our food-growing land is compromised and water supplies risked, as the gas gets shipped offshore and the companies make staggering profits and ask us to thank them for the royalties (a.k.a. paltry tip at the door), and as domestic prices rise through their linkage to Asian markets - in all of this - WHERE'S OUR TRANSITION? WE WANT OUR TRANSITION AND WE WANT IT YESTERDAY"

2. [REDACTED] comment today: "If you talk to the community services here in Gladstone, the occurrence of rape has tripled, the occurrence of suicide, not just youth suicide, has doubled. Men who were supporting their families previous to this industry 'kaboom' are no longer making enough money to pay rent, families are breaking down, people are moving here thinking they'll land a job in no time, but are not getting work and are then stuck here, can't pay rent. The cost of services such as mechanics, car repairs, hairdressers, have increased because employers are having to pay more to keep their employees and the cost is passed on to the customers. its a shambles!"

3. [REDACTED] comment today (Gladstone resident): [REDACTED] that's it in a nutshell. I've been trying for some time to source true suicide rate figures for the past 12 to 24 months, as of course my work points me in that direction. It's hard to find less than 'rubbery figures' though, as I fear they will tell a story of how quickly our community has slid into deterioration and mayhem. Our governments, at all levels should hang their heads in shame. Anything which affects a community so negatively cannot possibly be regarded as a positive step forward. These clowns will go down in our history as the people who not only macerated a society, but also caused ecological mayhem on a huge scale."

Many Queenslanders are wondering if there will be little but power point presentations to show our grandkids of what was once an iconic world heritage Great Barrier Reef marine park, what was once prime uncontaminated farmland, what was once a reliable & deep freshwater Great Artesian Basin.

Sincerely, [REDACTED]

**Sarah Partosh**

---

**From:** s.73 Personal Information [redacted]@gmail.com>  
**Sent:** Monday, 22 October 2012 10:21 AM  
**To:** The Premier  
**Subject:** Re: Santos Asks Permission to Pollute Queensland River

my postal address is



On Mon, Oct 22, 2012 at 9:51 AM, The Premier <[The.Premier@premiers.qld.gov.au](mailto:The.Premier@premiers.qld.gov.au)> wrote:

**Thank you for your email to the Honourable Campbell Newman MP, Premier of Queensland. We confirm receipt of your message. If you would like to provide an opportunity for the Premier to respond, please email back with your postal address and your correspondence will be actioned as appropriate. We appreciate the time you have taken to contact our office.**

**Ministerial Officer**

**Office of the Premier**

---

**From:** [redacted]@gmail.com]  
**Sent:** Sunday, 21 October 2012 2:21 PM  
**To:** The Premier  
**Subject:** Santos Asks Permission to Pollute Queensland River

Dear Mr Newman,

Endless advertisements by the CSG industry seek to reassure Queenslanders that the process is safe and well regulated. Santos obviously does not wish to obey the regulations and have sought permission to pollute the Dawson River. They have applied to pump large volumes of treated CSG water into the Dawson River between Injune and Taroom in Central Queensland. Their reverse osmosis plant was designed in such a way that the treated water does not meet current QLD Government standards. They want to dump it anyway. This contaminated waste does not nearly meet the standards- ammonia is 45x guidelines, sulphate 80x guidelines, boron 8 x guidelines and total suspended solids twice the guideline. Neither is this a one off small volume exception- they would be pumping 12-18 ML per day. The risk to public health and agriculture through bio-accumulation of these toxins in crops and animals is enormous. This must not be allowed to happen. Any releases of CSG water into the Dawson River or elsewhere must meet stringent standards which are not negotiable.

Yours sincerely

s.73 Personal Information

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Released under RTI / DPC

## Sarah Partosh

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**From:** donotreply\_webcontactform@cabinet.qld.gov.au  
**Sent:** Monday, 22 October 2012 8:00 PM  
**To:** The Premier  
**Subject:** Santos seeks permission to pollute the Dawson River.

**Importance:** High

Cabinet Contact email for Campbell Newman MP Premier

Subject: Santos seeks permission to pollute the Dawson River.

Title: Dr

First Name: [REDACTED] s.73 Personal Information

Family Name: [REDACTED]

Email: [REDACTED]@gmail.com

-----  
Address: [REDACTED]

Town: [REDACTED]

State: [REDACTED]

Postcode: [REDACTED]

Email: [REDACTED]@gmail.com  
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Comment:

I have been advised by the Premier's team to address my concerns on this issue to this page.

Endless advertisements by the CSG industry seek to reassure Queenslanders that the process is safe and well regulated. Santos obviously does not wish to obey the regulations and have sought permission to pollute the Dawson River. They have applied to pump large volumes of treated CSG water into the Dawson River between Injune and Taroom in Central Queensland. Their reverse osmosis plant was designed in such a way that the treated water does not meet current QLD Government standards. They want to dump it anyway. This contaminated waste does not nearly meet the standards- ammonia is 45x guidelines, sulphate 80x guidelines, boron 8 x guidelines and total suspended solids twice the guideline. Neither is this a one off small volume exception- they would be pumping 12-18 ML. The risk to public health and agriculture through bio-accumulation of these toxins in crops and animals is enormous. This must not be allowed to happen. Any releases of CSG water into the Dawson River or elsewhere must meet stringent standards which are not negotiable.

I anticipate your response to my concern.



## Sarah Partosh

---

**From:** [REDACTED] s.73 Personal Information [REDACTED]@hotmail.com>  
**Sent:** Wednesday, 24 October 2012 9:09 AM  
**To:** The Premier  
**Subject:** Coal Seam Gas and testing of water bores at Kogan

Dear Premier,

I would like to draw your attention to a cluster of posts/comments (yesterday) from [REDACTED] who lives amidst Tara/Chinchilla coal seam gasfields. Like so many families in the area [REDACTED] extended family is very sick from gas exposure and contaminated water - headaches, nosebleeds, sore eyes etc. Growing numbers of Qlders recognise the CSG industry is unsafe, undermonitored, is trashing massive swathes of Qld's food bowl, wrecking our Great Barrier Reef and slowly poisoning the population through contaminated/dewatered aquifers. Aside from impacting affordable housing and taking heavy toll on jobs in manufacture, tourism, small business, fishing, agriculture etc. Queensland could be leaving our grandkids a legacy of safe renewable baseload solar thermal energy, utilising inexhaustible sunshine. Your government has much to answer this and future generations.

[REDACTED] comments speak for themselves:

[REDACTED] So today we test the bore with what is now the eighth meter, yes that is 8 separate meters and a match on so many different occasions, all say flammable gas is present, gov says no flammable gas. Now who do you think I trust????????? That is eight meters Ian and Premier Newman, 8, yes 8. Oh, and a water test strip, for H2S as well. I don't know what would really be required for a royal commission, unbelievable, nice meter today. Seems my crash course into CSG testing and corruption is only just beginning. So the evidence mounts, Of course the most damning is the on camera admission of the LNG chief that he has seen the bore ignite. Of course that wouldn't mean he should have found out why, far before now. All you ask is public servants and governments do the job they are paid to do

[REDACTED] is also playing with his new camera, so if the images were not quite up to scratch, look at the new ones when they go up

[REDACTED] My cough and asthma type symptoms are back following testing the bore, Ian and Premier, you said it was safe, no gas present, odd these symptoms return every time we test it

[REDACTED] So how many meters have you used so far [REDACTED] I did not catch that number? [REDACTED] that would be eight, yes eight, not including the Gov ones, they show no LEL's (lower explosive limits) of flammable gas, even though they have seen it light, seen it ignite, in person, not just the clip, in person. So knowing it ignites why would the LNG enforcement unit choose, choose, i repeat, choose not to identify the ignition source.

[REDACTED] So to discredit the claim they put out a press release to say the bore was tested and was marginal at an earlier date. Of course that is true, but that earlier date was when we asked them to come out because the bore was damaged, so their base line was on our damaged bore, prior to the damage it was used consistently.

[REDACTED] They also claimed that bores often have methane in them in this area, possibly also true, but remember they tested the bore and said there was no methane. It is the old story, if you tell the truth it is always the truth, if you lie you need a bloody good memory. They argue both sides of the story to protect their bosses the CSG industry. LNG Enforcement UNIT working for the LNG Enforcement Government working for the LNG Industry."

Sincerely, [REDACTED] Southport, 4215

**Sarah Partosh**

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**From:** s.73 Personal Information [redacted]@hotmail.com>  
**Sent:** Wednesday, 24 October 2012 7:21 PM  
**To:** The Premier  
**Subject:** RE: Coal Seam Gas and testing of water bores at Kogan

Thank you for your reply. Yes please I would like a response, my postal address is [redacted]

Sincerely, [redacted]

---

**From:** The.Premier@premiers.qld.gov.au  
**To:** [redacted]@hotmail.com  
**Date:** Wed, 24 Oct 2012 14:39:27 +1000  
**Subject:** RE: Coal Seam Gas and testing of water bores at Kogan

Thank you for your email to the Honourable Campbell Newman MP, Premier of Queensland. We confirm receipt of your message. If you would like to provide an opportunity for the Premier to respond, please email back with your postal address and your correspondence will be actioned as appropriate. We appreciate the time you have taken to contact our office.

Ministerial Officer  
Office of the Premier

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**Sent:** Wednesday, 24 October 2012 9:09 AM  
**To:** The Premier  
**Subject:** Coal Seam Gas and testing of water bores at Kogan

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Growing numbers of Qlders recognise the CSG industry is unsafe, undermonitored, is trashing massive swathes of Qld's food bowl, wrecking our Great Barrier Reef and slowly poisoning the population through contaminated/dewatered aquifers. Aside from impacting affordable housing and taking heavy toll on jobs in manufacture, tourism, small business, fishing, agriculture etc.

Queensland could be leaving our grandkids a legacy of safe renewable baseload solar thermal energy, utilising inexhaustible sunshine. Your government has much to answer this and future generations.

[redacted] comments speak for themselves:

[redacted] So today we test the bore with what is now the eighth meter, yes that is 8 separate meters and a match on so many different occasions, all say flammable gas is present, gov says no flammable gas. Now who do you think I trust????????? That is eight meters Ian and Premier Newman, 8, yes 8. Oh, and a water test strip, for H2S as well. I don't know what would really be required for a royal commission, unbelievable, nice meter today. Seems my crash course into CSG testing and corruption is only just beginning. So the evidence mounts, Of course the most damning is the on camera admission of the LNG chief that he has seen the bore ignite. Of course that wouldn't mean he should have found out why, far before now. All you ask is public servants and governments do the job they are paid to do

[redacted] is also playing with his new camera, so if the images were not quite up to scratch, look at the new ones when they go up

[redacted] My cough and asthma type symptoms are back following testing the bore, Ian and Premier, you said it was safe, no gas present, odd these symptoms return every time we test it

[redacted] So how many meters have you used so far [redacted] I did not catch that number?

[REDACTED] that would be eight, yes eight, not including the Gov ones, they show no LEL's (lower explosive limits) of flammable gas, even though they have seen it light, seen it ignite, in person, not just the clip, in person. So knowing it ignites why would the LNG enforcement unit choose, choose, i repeat, choose not to identify the ignition source.

[REDACTED] So to discredit the claim they put out a press release to say the bore was tested and was marginal at an earlier date. Of course that is true, but that earlier date was when we asked them to come out because the bore was damaged, so their base line was on our damaged bore, prior to the damage it was used consistently.

[REDACTED] They also claimed that bores often have methane in them in this area, possibly also true, but remember they tested the bore and said there was no methane. It is the old story, if you tell the truth it is always the truth, if you lie you need a bloody good memory. They argue both sides of the story to protect their bosses the CSG industry. LNG Endorcement UNIT working for the LNG Endorcement Government working for the LNG Industry."

Sincerely, [REDACTED] s.73 Personal Information [REDACTED], Southport, 4215

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Released under RTI-DPC

## Sarah Partosh

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**From:** The Premier  
**Sent:** Thursday, 25 October 2012 11:17 PM  
**To:** The Premier

**Importance:** High

**Subject:**

Title: miss

First Name: [REDACTED] s.73 Personal Information

Family Name: [REDACTED]

Email: [REDACTED]@yahoo.com

---

**Address:**

Town:

State:

Postcode:

Email: [REDACTED]@yahoo.com

---

**Comment:**

I would like you to explain the document I just read regarding the fact that you intend to allow mining and coal seam gas in our National Parks.

I think there will be many hundreds of thousands of people who will be demanding your immediate resignation if you decide to follow through with such an immoral and irresponsible decision.

Released under RTI - DPC

**Sarah Partosh**

---

**From:** The Premier  
**Sent:** Sunday, 28 October 2012 10:21 AM  
**To:** The Premier  
**Subject:** Blackstone State school  
**Attachments:** Letter to premier.doc

**Importance:** High

Subject: Blackstone State school

Title: Mrs

First Name: [Redacted] s.73 Personal

Family Name: [Redacted] Information

Email: [Redacted]@internode.on.net

Address: [Redacted]

Town: [Redacted]

State: [Redacted]

Postcode: [Redacted]

Email: [Redacted]@internode.on.net

Comment:

Attached is a letter regarding the Blackstone State School site.

Regards

Mrs [Redacted]

Released under RTI - DPC



To Premier Campbell Newman

I am writing this letter in regards to the Blackstone State School site. This school was closed by the Labor government and since that time it is being used by a couple of organisations rent free.

I feel I should let you know what my feelings are regarding this site. In an idealist world I would like this site reopened as a school. But due to the financial situation of the state at present I know this is unrealistic. However I would prefer that this site be used in some how for the benefit of the Blackstone community. I have contacted our Mayor Paul Pisasale to see if the council could perhaps purchase the property for use for the community as a park. The site has a multi purpose court and toilets on site, which no other park in Blackstone currently has. It also has undercover areas for barbecues and gatherings. This site can also support a dog walking park for the use of the community. The buildings could still be used by the current tenants, with maintenance of the site as payment for rent. Unfortunately he has advised me that that is not possible.

I cannot comfortably be happy with the school site being sold or be left to fall down unless I have tried my best to keep the school for future education of the local children.

During that time Lawrence Springborg was in opposition and announced if the LNP won the election the school would stay open. Unfortunately that wasn't the case. Please consider keeping the school and perhaps using as I have suggested earlier in my correspondence. Then if the need for another school is required it still remains property of the education department.

I do support you and all that you are trying to achieve, but imagine if you were to announce that the school would remain for the community. I know the support you would receive from the people in and around Blackstone would be huge.

I would also like to plead with you in stopping the Coal Seam Gas mining. I feel very strongly that our water supply is extremely important, more important than the almighty dollar. I have children as you have as well. Please reconsider this mining. I don't feel it is safe and even if the change of destroying our water supply is only minimal, it is still a possibility.

Yours truthfully

s.73 Personal  
Information

**Sarah Partosh**

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**From:** s.73 Organisation [redacted]@gmail.com>  
**Sent:** Sunday, 4 November 2012 12:23 PM  
**To:** The Premier  
**Cc:** environment@ministerial.qld.gov.au; Nanango@parliament.qld.gov.au  
**Subject:** UCG in Kingaroy

4 November 2012

[redacted]  
Premier Campbell Newman  
PO Box 15185  
CITY EAST QLD 4002

Re: Cougar Energy Underground Coal Gasification Experiment

Dear Premier

[redacted] has a membership of 241 local residents who are concerned about:

- effects of mining on prime agricultural land and
- environmental and economic impacts of inappropriate development on both rural and residential populations of the South Burnett region.

This group has campaigned against the Underground Coal Gasification (UCG) experiment allowed by the previous government. Due to serious failures, this project was closed by then Premier Bligh. Despite this closure by the previous government and assurances by you in the lead-up to the 2012 election, the site of UCG experiment has not been dismantled and the land rehabilitated.

The most recent statements used by the company to say the site will be mothballed and used at a later date are obviously not acceptable under any circumstances by the local community.

When Cougar Energy appealed against the order to close the plant, Judge Richard Jones delivered a 14 page ruling in which he:

- criticised Cougar Energy for its repeated assertions that no environmental harm had taken place due to the UCG trial, noting that there is no safe concentration level for benzene in drinking water.
- noted the contaminated water at Kingaroy could be a potential future source of potable human drinking water and that the precautionary principle must apply.
- Ruled that the company must recommence decommissioning and rehabilitation on the site, even though it is still appealing DERM's decision to permanently close the plant.

The [redacted] have always been opposed to the process of Underground Coal Gasification (UCG) and in particular the site of this experimental plant.

UCG plants overseas have been responsible for toxic chemicals permanently polluting groundwater supplies. The Kingaroy experimental site was far too close to important underground water supplies. After 3 days of failed operations at the Kingaroy plant testing of cattle near the plant by State Government officers revealed high levels of benzene and toluene in fat samples. In addition a recent report by the State's Ombudsman on the previous Governments approval process for the experimental UCG plant fully justified the concerns of local residents regarding the serious risks of the experiment.

Members of the [redacted] request that the State Government ensure the site is immediately dismantled and the site rehabilitated with a set completion date so the land, classed as Strategic Cropping land, can be returned to its rightful purpose of growing food.

We appreciate your consideration of this matter, and look forward to hearing from you regards your intentions to finalise this matter in the best interests of the South Burnett Community.  
Yours Sincerely

---

Cc:

**Hon Andrew Powell**  
**Minister for Environment and Heritage Protection**  
GPO Box 2454  
BRISBANE QLD 4001  
**Mrs Deb Frecklington**  
Member Nanango  
PO Box 1158  
KINGAROY QLD 4610

Released under RTI - DPC

## Sarah Partosh

---

**From:** The Premier  
**Sent:** Monday, 12 November 2012 8:09 AM  
**To:** The Premier  
**Subject:** Coal seam gas

**Importance:** High

Subject: Coal seam gas

Title: Ms

First Name: [REDACTED] s.73 Personal Information

Family Name: [REDACTED]

Email: [REDACTED]@bigpond.com

Address: [REDACTED]

Town: [REDACTED]

State: [REDACTED]

Postcode: [REDACTED]

Email: [REDACTED]@bigpond.com

Comment:

I was listening to the Alan Jones show this morning and was appalled to hear of the plight of families living with these mines. We have not completed any research into how this erodes health; health of people and the environment. I understand we need money to come in following the rape of our state by the labor government - but not this way. It cannot be investment without repercussions. Australian families are suffering - we cannot allow this to continue. Imagine it was your family living with the side effects of this industry. I am sure you would change things then. It is up to you to protect the people of this state - please do your job!

Regards, [REDACTED]

## Sarah Partosh

---

**From:** [REDACTED]@gmail.com>  
**Sent:** Thursday, 15 November 2012 11:05 AM  
**To:** The Premier  
**Subject:** Western Downs

Premier Campbell Newman,

My name is [REDACTED]

Please do not send me a 'form letter' that has not been seen by the Premier, as seems to be the usual response. 'from the office of...!'

I would like to know what is being done to address the problems and the questions that many people are facing in the Western Downs and other areas that are being impacted by the gas industry and coal mining boom. Is there plans for independent testing that is going to be done by groups not attached to the gas and mining industry in regards to health and other concerns in the Western Downs areas?

Others and myself have taken upon ourselves to go out there, several times, to see for ourselves. People have been shocked and distressed at what is happening. We have seen for ourselves that it is not like the ads and the gas industry do not tell the whole story. There are many unanswered questions, many concerns and problems that are not being addressed, that should have been before the unconventional gas industry was rolled out. It is too much, too fast, without these questions being answered.

We have come to know the residents in the gasfields as well as many farmers in the Western Downs. There are also people who have been displaced by coal mines or are living in close proximity of coal mines and suffering from it. Some people have moved away from an area because of a coal mine only to find themselves living in a gasfield.

People have had their lives disrupted. They are facing an uncertain future, there is no security in owning your own land anymore. People are being adversely affected, in regards to their physical and mental health, as well as financially, which also causes a great deal of stress. There is no peace. Their land is devalued, it is being changed from a rural area into an industrial zone.

There is no way that people can, or should have to, live in a gasfield or in an industrial zone. There are many families experiencing health problems out there and nothing seems to be being done by the government, past or present. To my knowledge, no politicians go out there and see for themselves or talk to people. It is only going to get worse the further developed these fields become. People need to be moved out.

There is an economic cost to health, community, environment and agriculture that is not offset by the 'benefits' of the gas industry. People are not collateral damage and this is not in the best interests of the state, or the country.

Others and myself have met many families who live in the gasfields, I have seen the nosebleeds, the rashes, etc.... . Currently, a little boy is in a Brisbane hospital with an unexplained illness. His doctors know every thing about him, so yesterday when he became ill the care flight helicopter was dispatched from Brisbane immediately. It is a mystery at why he is sick, however the family unknowingly moved next to a gas well and a vent valve that spews gas into the air 24/7. We have have seen another child in the family have unexplained nose bleeds as well. I know they want to leave but with a family of nine its expensive and difficult. No one wants to buy their property, or any of the other people who live out there. Who wants to



live in a gasfield or next to a coal mine?

It's not fair the families are going through this.

This is part of a letter that was circulating in the Cameby farming community before a group took a bus trip to see for ourselves what was going on. There were over 20 utes pulled up waiting for us when we arrived:

'As I know you are well aware, the coal & gas companies & their activities that now dominate our region have caused a lot of farmers a lot of distress in many different ways. Both mental & physical health, financial distress and land degradation to name just a few.

(We)...have been recognised by a group of people in Brisbane who are equally worried about what is going on out here as we are. These people recognise our concerns as legitimate concerns.

A small number of these people have been out & met with several local Cameby farmers and have been absolutely taken back with what has been happening out there and the wrong doings that some of these farmers have had to endure. Now a group of 20 or more of these city folk are coming out by bus to see for themselves what is really going on in the area. They will be visiting Miles, Wandoan, Kogan & Tara and they want to talk to people out here to hear for themselves what we are/have experienced and how we are being affected.

(We).. are inviting anyone who has been affected by any energy company to meet these people & let them know first hand, what you have experienced – good &/or bad. It is hoped that we can show these people how broad our problems are and how each one of us suffers differently. It is also hoped that if we can get some support and that those higher up will begin to listen, take notice of our concerns & and see that these companies & their activities are not as 'friendly' as they would lead people to believe.'

Thanking you and keenly awaiting a response.

s.73 Personal Information

Released under the  
Official Information Act 1982

**Sarah Partosh**

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**From:** s.73 Personal Information [redacted]@gmail.com>  
**Sent:** Thursday, 15 November 2012 5:40 PM  
**To:** The Premier  
**Subject:** Methane leaking from coal seam gas field, testing shows

Dear Campbell Newman,

You have been sent this article link by [redacted] courtesy of brisbanetimes.com.au

Personal Message: Premier

I know your hands are full at present but please take the time to read this story and follow it up. If this is correct then Queensland already has permanent damage to the underground water supply on the Darling Downs - worse even than Wyoming which has lost most of its cropping lands because of fracking. Regards [redacted]

Methane leaking from coal seam gas field, testing shows

November 14, 2012 - 4:32PM

To view the entire article, click on: <http://www.brisbanetimes.com.au/environment/climate-change/methane-leaking-from-coal-seam-gas-field-testing-shows-20121114-29c9m.html>

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Released under RTI - DPPC

**Sarah Partosh**

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**From:** The Premier  
**Sent:** Friday, 16 November 2012 1:06 PM  
**To:** The Premier  
**Subject:** s.73 Personal Information  
**Attachments:** [redacted].jpg  
**Importance:** High

Subject: [redacted]  
Title: Ms  
First Name: [redacted]  
Family Name: [redacted]  
Email: [redacted]@bigpond.com

Address: [redacted]  
Town: [redacted]  
State: [redacted]  
Postcode: [redacted]  
Email: [redacted]@bigpond.com

Comment:

This is [redacted] he lives next to a CSG well - right now he is in a Brisbane children's hospital with an unexplained illness. His medical history is known to doctors, so yesterday when he became ill the care flight helicopter was dispatched from Brisbane straight away. It is a mystery why he is sick - the family moved, unknowingly next to a gas well and a vent valve that spews gas into the air 24/7. [redacted] sister is also in hospital at present, other children in the family have unexplained nose bleeds as well.

The effects of CSG chemical contamination on the health children and adults is now proven.

IT MUST be stopped before there are more people suffering like little [redacted]

Kind Regards

[redacted]

Released Under RTI - DPC

Page 227 redacted for the following reason:

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s.73 Personal Information

Released under RTI - DPC

**Sarah Partosh**

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**From:** [REDACTED]@gmail.com  
**Sent:** Monday, 19 November 2012 1:56 PM  
**To:** The Premier  
**Subject:** Re: Western Downs

Thank you for a timely confirmation of my message.

My postal address is:

[REDACTED]

I am looking forward to a response from the Premier.

[REDACTED]

On Fri, Nov 16, 2012 at 8:03 AM, The Premier <[The.Premier@premiers.qld.gov.au](mailto:The.Premier@premiers.qld.gov.au)> wrote:

Thank you for your email to the Honourable Campbell Newman MP, Premier of Queensland. We confirm receipt of your message. If you would like to provide an opportunity for the Premier to respond, please email back with your postal address and your correspondence will be actioned as appropriate. We appreciate the time you have taken to contact our office.

Ministerial Officer

Office of the Premier

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**From:** [REDACTED]@gmail.com  
**Sent:** Thursday, 15 November 2012 11:05 AM  
**To:** The Premier  
**Subject:** Western Downs

Premier Campbell Newman,

My name is [REDACTED]

Please do not send me a 'form letter' that has not been seen by the Premier, as seems to be the usual response. 'from the office of...'



I would like to know what is being done to address the problems and the questions that many people are facing in the Western Downs and other areas that are being impacted by the gas industry and coal mining boom. Is there plans for independent testing that is going to be done by groups not attached to the gas and mining industry in regards to health and other concerns in the Western Downs areas?

Others and myself have taken upon ourselves to go out there, several times, to see for ourselves. People have been shocked and distressed at what is happening. We have seen for ourselves that it is not like the ads and the gas industry do not tell the whole story. There are many unanswered questions, many concerns and problems that are not being addressed, that should have been before the unconventional gas industry was rolled out. It is too much, too fast, without these questions being answered.

We have come to know the residents in the gasfields as well as many farmers in the Western Downs. There are also people who have been displaced by coal mines or are living in close proximity of coal mines and suffering from it. Some people have moved away from an area because of a coal mine only to find themselves living in a gasfield.

People have had their lives disrupted. They are facing an uncertain future, there is no security in owning your own land anymore. People are being adversely affected, in regards to their physical and mental health, as well as financially, which also causes a great deal of stress. There is no peace. Their land is devalued, it is being changed from a rural area into an industrial zone.

There is no way that people can, or should have to, live in a gasfield or in an industrial zone. There are many families experiencing health problems out there and nothing seems to be being done by the government, past or present. To my knowledge, no politicians go out there and see for themselves or talk to people. It is only going to get worse the further developed these fields become. People need to be moved out.

There is an economic cost to health, community, environment and agriculture that is not offset by the 'benefits' of the gas industry. People are not collateral damage and this is not in the best interests of the state, or the country.

Others and myself have met many families who live in the gasfields, I have seen the nosebleeds, the rashes, etc.... . Currently, a little boy is in a Brisbane hospital with an unexplained illness. His doctors know every thing about him, so yesterday when he became ill the care flight helicopter was dispatched from Brisbane immediately. It is a mystery at why he is sick, however the family unknowingly moved next to a gas well and a vent valve that spews gas into the air 24/7. We have have seen another child in the family have unexplained nose bleeds as well. I know they want to leave but with a family of nine its expensive and difficult. No one wants to buy their property, or any of the other people who live out there. Who wants to live in a gasfield or next to a coal mine?

It's not fair the families are going through this.

This is part of a letter that was circulating in the Cameby farming community before a group took a bus trip to see for ourselves what was going on. There were over 20 utes pulled up waiting for us when we arrived:

‘As I know you are well aware, the coal & gas companies & their activities that now dominate our region have caused a lot of farmers a lot of distress in many different ways. Both mental & physical health, financial distress and land degradation to name just a few.

(We)...have been recognised by a group of people in Brisbane who are equally worried about what is going on out here as we are. These people recognise our concerns as legitimate concerns.

A small number of these people have been out & met with several local Cameby farmers and have been absolutely taken back with what has been happening out there and the wrong doings that some of these

farmers have had to endure. Now a group of 20 or more of these city folk are coming out by bus to see for themselves what is really going on in the area. They will be visiting Miles, Wandoan, Kogan & Tara and they want to talk to people out here to hear for themselves what we are/have experienced and how we are being affected.

(We).. are inviting anyone who has been affected by any energy company to meet these people & let them know first hand, what you have experienced – good &/or bad. It is hoped that we can show these people how broad our problems are and how each one of us suffers differently. It is also hoped that if we can get some support and that those higher up will begin to listen, take notice of our concerns & and see that these companies & their activities are not as ‘friendly’ as they would lead people to believe.’

Thanking you and keenly awaiting a response.

s.73 Personal Information

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Released under RTI / DPC

**Sarah Partosh**

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**From:** The Premier  
**Sent:** Tuesday, 20 November 2012 7:29 PM  
**To:** The Premier  
**Subject:** Re: The Effects of the Mining Industry on Queensland's Economy, Environment and Society  
**Attachments:** C Newman letter Mining Industry .pdf  
**Importance:** High

Subject: Re: The Effects of the Mining Industry on Queensland's Economy, Environment and Society

Title: Mr

First Name: [Redacted] s.73 Personal Information

Family Name: [Redacted]

Email: [Redacted]@gmail.com

-----  
Address: [Redacted]

Town: [Redacted]

State: [Redacted]

Postcode: [Redacted]

Email: [Redacted]@gmail.com  
-----

Comment:

Please refer to the attached letter, in PDF.

Thank you for your time.

Released under RTI - DPC

The Queensland Premier  
Mr Campbell Newman  
PO Box 15185  
City East Qld 4002

Dear Mr Newman,

**Re: The Effects of the Mining Industry on Queensland's Economy, Environment and Society**

I wish to express to you my relief after reading about one of your latest comments regarding the CSG industry, specifically, in response to the latest report on fugitive atmospheric methane emissions put forward by Drs Isaac Santos and Damien Maher of the Southern Cross University. On Thursday this week, you made the statement: "I am not going to tolerate any activity in any industry that affects people in terms of the environment where they live," and I want to express my gratitude towards you for saying this. Given the evidence at hand, what will the State Government be doing moving forward with existing problems, particularly with regards to the sick residence and their children in Tara and the ongoing problem plaguing the marine life, and the seafood industry in the Gladstone Harbour?

I am a concerned resident of Brisbane, and whilst *apparently* these things beyond these busy streets don't have much effect on my life, I do view the mining industry in its current form as barbarians at the gate. Unrestricted, it is in my opinion that they will transform our way of life irreversibly, for the worse. Though at times I am very tempted to, I am not suggesting elimination of the mining industry altogether. I acknowledge why they exist. I have little trust of the CSG drilling industry, and perhaps would like to see it in particular shut down (I don't believe it is a good transition fuel, albeit for a shorter period, methane is nevertheless an extremely potent greenhouse gas), but here I wish to broaden my view and express concerns for the mining industry in general.

I attended a forum hosted by the Australia Institute at the Queensland Museum on Wednesday 14th November. It was with an amazing amount of explanation that I came away not only concerned about our environment and society as I was before the forum, but also with doubts as to how effectively the mining boom in general will benefit the Queensland economy, in the short and long terms.

I am quoting directly from the flier that the Australia Institute handed out at the forum:

"Mining "crowds out" other industries. High commodity prices have pushed up the Australian dollar. The high Australian dollar and wage inflation erode other export industries such as agriculture, tourism, manufacturing and education."

Allowing such detrimental effects to occur on those other industries, as better tax payers, seems to me counter-intuitive. I say better tax payers as it was also explained to me that the claim by many mining industry representatives that the industry pays handsome sums of tax is quite possibly deceptive to say the least.

"The mining industry pays an average of 13 per cent - far lower than the average of 21 per cent for other industries."

Royalties don't count in this sum either, considering royalties are just the industry rightfully paying for their raw material, as does a carpenter when he purchases timber, or a farmer his seed or fertiliser. Subtract from this further the subsidies and concessions the industry receives, to the tune of \$10 billion every year.

Unfortunately, as per the examples of Gladstone Harbour, Curtis Island and the Great Barrier Reef, the lack of baseline sampling of water, soil and air, the lack of priority put on desperately needed research et cetera while the mining industry hurriedly expands before the evidence against them stacks up, the environment seems to me to be getting disregarded in the whole equation. The lack of action taken by the government on that issue is a long and sad story, so I won't go into it here any further. Let it simply be noted that I think your government are making very poor progress in environmental issues.

I am a proud father of two sons. My two young boys matter to me greatly. Their future options matter to me, their world, intact, at a time when so much more than the hip pocket is important, matters to me. I do acknowledge what you said in your interview on ABC radio regarding the research carried out by Drs Santos and Maher, and I do really appreciate it, I also appreciate that you *have* had to make some tough decisions to fix the budget (not that I have agreed with *all* of them) after the chaos of natural disasters, bungled Queensland Health payrolls et cetera, but please make that statement significant, a turning point, a positive direction for Queensland's Environment, Economy and Society.

If not kept in check, the mining industry won't save us, it will damage us and we will pay the cost for many years to come.

Sincerely yours,

s.73 Personal Information



**Sarah Partosh**

---

**From:** The Premier  
**Sent:** Tuesday, 20 November 2012 7:59 PM  
**To:** The Premier  
**Subject:** Invitation

**Importance:** High

Subject: Invitation

Title: Mr

First Name: [Redacted] s.73 Personal Information

Family Name: [Redacted]

Email: [Redacted]@gmail.com

-----  
Address: [Redacted]

Town: [Redacted]

State: [Redacted]

Postcode: [Redacted]

Email: [Redacted]@gmail.com  
-----

Comment:

Dear Premier, as you are probably aware, I have major issues with the coal seam gas industry. This industry that you maintain is over regulated is out of control out here. As you are aware there is now research that could easily indicate the health impacts we complain of are CSG related. I would like to extend to you an invitation to meet me and visit this region and the effected families. I believe we, as Brett Smith of QGC said clearly in a meeting are seen as collateral damage. I for one will not be seen as collateral damage and would like to discuss our plight, and the plight of others around us, with you. A friend said your office suggested I contact you regarding this visit. It would be greatly appreciated if you could in fact find this time, this is bigger than your budget, it is the health of many children and adults in this region. Thank you for looking at this request, Sincerely, [Redacted]

Released under the RTI - DPC

**Sarah Partosh**

---

**From:** The Premier  
**Sent:** Tuesday, 20 November 2012 8:05 PM  
**To:** The Premier  
**Subject:** s.73 Personal Information - Invitation URGENT

**Importance:** High

Subject: s.73 Personal Information - Invitation URGENT  
Title: Mrs  
First Name: [redacted]  
Family Name: [redacted]  
Email: [redacted]@gmail.com

-----  
Address: [redacted]  
Town: [redacted]  
State: [redacted]  
Postcode: [redacted]  
Email: [redacted]@gmail.com  
-----

Comment:

Dear Mr Newman

On behalf of [redacted] and many residents of Tara Qld, I would dearly like to extend a sincere invitation for you and your family to visit [redacted] at their farm to discuss the ongoing issues that they are having (health-wise and water/air-wise) with them.

[redacted] is a gentleman and would be so very grateful if you took the time for an informal visit to his property. I personally believe that as Premier of Queensland, it is your duty to visit and meet with [redacted] at his farm considering the dire nature of his concerns. As you are aware, he has been handed about and passed around and if it were yourself and your family experiencing such treatment, you'd be ropable. [redacted] is a gentleman (as I said earlier) and there should be more good Australian's like him. The world would be a better place that is for sure.

I am a very regular visitor to your beautiful state (Qld), as I live just over the border (in the lesser state !!). I absolutely adore the Whitsundays and Far NQ, and have many friends in Toowoomba, Brisbane, Gold Coast and Chinchilla, Rockhampton and Kuranda. Took me a while to grasp the 'toll' system but that wasn't your doing!

Again, thank you for your time. Please, please arrange to visit Mr [redacted]

His details are as follows:

[redacted]

Or contact via phone/email:

[redacted]@gmail.com

ph: [redacted]

**Sarah Partosh**

---

**From:** The Premier  
**Sent:** Tuesday, 20 November 2012 8:50 PM  
**To:** The Premier  
**Subject:** Invitation - Brian Monk

**Importance:** High

Subject: Invitation - [Redacted] s.73 Personal Information  
Title: Mrs  
First Name: [Redacted]  
Family Name: [Redacted]  
Email: [Redacted]@gmail.com

-----  
Address: [Redacted]  
Town: [Redacted]  
State: [Redacted]  
Postcode: [Redacted]  
Email: [Redacted]@gmail.com  
-----

**Comment:**

Dear Mr Newman

I sent you an email invitation to visit [Redacted] and his family earlier.

I have been stewing about it ever since writing. I didn't write it exactly as I'd like to have written it, so please accept my 2nd invitation to meet with [Redacted] at his farm. Take two:

Mr Newman, excuse me for being so forward, but you MUST visit Mr [Redacted]. It is imperative.

[Redacted] have been living in a literally hell-like state since having their farm surrounded by the gas wells and infrastructure.

They often have to relocate from their home [Redacted] in order to not feel sick and be breathing in whatever fumes are coming from their bore.

Their grandchildren are constantly sick. They are constantly sick.

The children have been having unexplained and terrible illnesses, the adults are suffering health effects that your 1300 Health No are simply not addressing. In fact I would go so far as to say that the 1300 Health no. is ineffective when it comes to helping the people living amidst the gas fields.

[Redacted] can often literally light his bore, yet the inspectors find nothing unusual there??

Please Mr Newman. I beg you, as a mother of three myself and a small business owner and citizen of this wonderful country of ours, I beg you to please, PLEASE do the right thing. Take your beautiful wife and daughters out to visit [Redacted]

Sit with him and listen to him in person. Sit with him with your wife, your daughters. Sit with the [Redacted] family to family. In a personal fashion.

I invite you to sit with one of your constituents and discuss/listen and feel/see what he is crying out about.

Considering the scope of this industry (CSG), it is the least you can do - visit someone who is living amidst this industry. Against their will. Having dreadful effects inflicted upon their most loved and precious family. In their own home. Home is supposed to be a safe place Mr Newman. A place whereby your family can close the door and feel safe.

This is a monumentous issue Mr Newman. It is HUGE. I have three children and I cannot look them in the eye and feel confident that our government are doing everything in their power to provide them with a safe and healthy environment for them to grow and flourish within.

s.73 Personal Information is a most decent, humble man and it is an absolute crime (in my eyes) for him to be ignored.

Again, I plead for you and extend a sincere and urgent invitation to make contact with [REDACTED] and arrange a visit.

Thank you so much for your time.

I look forward to hearing some positive news from you

Released under RTI - DPC

## Sarah Partosh

---

**From:** The Premier  
**Sent:** Friday, 23 November 2012 1:09 PM  
**To:** The Premier

**Importance:** High

**Subject:**

**Title:** MR

**First Name:** s.73 Personal Information

**Family Name:**

**Email:** [REDACTED]@bigpond.com

---

**Address:**

**Town:**

**State:**

**Postcode:**

**Email:** [REDACTED]@bigpond.com

---

**Comment:**

Premier what is wrong with your government you sacked people on contracts only to have there contracts payed out, i agree that the public service needed to be thinned out but not how you went about it you mob are nearly as bad as the last government, if i ran a business like you are running our state i would be broke you mob need to wake up. Also i don't under stand why your government keep allowing the CSG industry to distroy our very precious farming land that land is more valuable to our economy than the short term mining industry all this is a quick grab for money nothing more to the detriment of our farmers and there family"s, there are people suffering terrible health problems in these areas and the minister for mining ignores them i thought Andrew Cripps would be a good person in parliament but as a lot of people in this electorate have found out he is just a yes man for you and the mining industry, he obviously knows nothing about the CSG industry or the procedure you"s ed by this industry, a little while ago when there was a methane leak at a well hole out side Dalby Andrew Cripps said that the leak was not caused by Arrow energy but from the coal mine, in all the years that mine has bin there was never a problem until Arrow started to deliquiphy the aquifer which then allowed the methane to rise and escape out the bore hole, how can a man who is supposed to be so intelligent say what he said in the press release, your government needs to wake up and start to listen to the very people who put you lot in government.



**Sarah Partosh**

---

**From:** [REDACTED] s.73 Personal Information@gmail.com>  
**Sent:** Tuesday, 27 November 2012 2:28 PM  
**To:** Ray Brown; The Premier  
**Cc:** [REDACTED] s.73 Personal Information WDA  
**Subject:** Can I ask you?

Dear Mr Ray Brown,

My name is [REDACTED] I kindly asked to speak to you on Saturday the 3rd of November at the opening of the QGC Information Centre in Chinchilla. My family are being heavily harmed by the coal seam gas industry, they are trespassing onto our human rights. As the Mayor of the region, Western Downs shire. I ask you, What are you going to do to protect my family and all other impacted families from the harm, our right to live on our property from coal seam gas? Please respond to my email, I thank you for your time.

Kind regards  
[REDACTED]

Released under RTI - QGC

## Sarah Partosh

---

**From:** s.73 Personal Information@gmail.com>  
**Sent:** Tuesday, 27 November 2012 2:35 PM  
**To:** Andrew Powell; Andrew Smith; Barnaby Joyce; BG Investors Relations - Equiniti; Bill Date; Bob Carr; Brendan O'Connor; Brett Mason; Brisbane Times; Bruce Scott; The Premier; Carolyn Tillman; Charlene Hall; Chronicle Toowoomba rural news; Claire Moore; Councillor Barry Longland (Deputy Mayor); Councillor Dot Holdom; Councillor Joan van Lieshout; Councillor Katie Milne; Councillor Kevin Skinner (Mayor); Councillor Phil Youngblutt; Councillor Warren Polglaseme; Courier Mail; Drew Hutton; Energy and Water; Gas Feild Commission; George Brandis; George Moore; Greg Combet; Greg Olm; Heiner Ian; Ian MacDonald; Ian Rasmussen; Jan McLucas; Jenny Macklin; Joe Ludwig; John Cotter; John Hogg; Kevin Rudd; Kim Blomley BG group Media Contact; Larissa Waters; Lawerance Springborg; Lindsey Marsden; Mark Furner; Mark Todd - BG Group Media Contact; Martin Ferguson; Neil Burrows - BG Group; PaGroup media enquiries -BG Group; Ray Jamieson; Ron Boswell; Sue Boyce; Tanya Plibersek; the chronicle toowoomba; Tony Brame; Tony Burke; Townsville Bulletin; Wayne Swan  
**Cc:** [REDACTED] WDA  
**Subject:** CSG causing harm

Please view these video clips, it gives you an idea of whats happening in the gas fields in the Surat Basin

<https://www.youtube.com/watch?v=-fwhUgWT5b0>

<https://www.youtube.com/watch?v=BJ9wfGqCOWc&feature=relmfu>

<https://www.youtube.com/watch?v=y2WoAK-fL-1&feature=relmfu>

<https://www.youtube.com/watch?v=f83y8l6YAKU>

<https://www.youtube.com/watch?v=K04taMEqIac&feature=relmfu>

<https://www.youtube.com/watch?v=SMPtWT6RsF4&feature=relmfu>

Hello, I just wanted to inform you of the types of activites and the effects of what the Coal Seam Gas industry does to communities. This is the side of the industry that the companies and the government don't want you to see. These are only a few of the you tube clips that our videography has done at the moment. There are more in the process of being edited and will be sent to you upon being released to the public. Please remember, there are innocent children and families, young and old, who are being subjected to this harmful CSG industry. They are suffering the consequences of the industries actions and it appears there is on going support by the government.

Thank you for your time

Kind Regards  
[REDACTED]

**Sarah Partosh**

---

**From:** [REDACTED]@bigpond.com>  
**Sent:** Wednesday, 28 November 2012 7:11 AM  
**To:** The Premier  
**Subject:** This has to be seen to be believed [http://www.youtube.com/watch?feature=player\\_embedded&v=K04taMEqIac](http://www.youtube.com/watch?feature=player_embedded&v=K04taMEqIac) URGENT

Dear Mr Newman,

These people are being gassed.

Please do something about it.

Whilst I have witnessed this on weekends,I have assumed it was done stealthily as the foreman promised our driver it wouldn't happen again.

[http://www.youtube.com/watch?feature=player\\_embedded&v=K04taMEqIac](http://www.youtube.com/watch?feature=player_embedded&v=K04taMEqIac)

URGENT



former only ever Liberal/National Party Voter and



Released Under RTI-DPC

**Sarah Partosh**

---

**From:** s.73 Personal Information @bigpond.com>  
**Sent:** Friday, 30 November 2012 1:38 PM  
**To:** The Premier  
**Subject:** Important correspondence relating to Powerlink Queensland  
**Attachments:** Letter to M. York 30 November 2012.docx; Finding the real Grid Australia Electricity v2.pdf

The Premier of Queensland, Mr Campbell Newman,

The attached documents are copies of a letter and an attachment which we have sent to M/s Meryn York, Chief Executive, Powerlink Queensland and to Mr Stephen Rochester, Chairman, Powerlink Queensland.  
The matters raised within these documents are serious.

Kind Regards,

s.73 Organisation



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THE

# MANNING ALLIANCE INC.

“Working Strategically with the Community to Prevent Coal Seam Gas Drilling in our Valley.”

Information Centre: 41 Isabella St Wingham. PO Box 470 Taree NSW 2430. [www.manningalliance.org.au](http://www.manningalliance.org.au) Project Blue Hotline (02) 65505853

Patron: Di Morrissey

30 November 2012

M/s Merryn York  
Chief Executive  
Powerlink Queensland  
33 Harold Street  
Virginia Queensland 4014

By email to: [kdenaro@powerlink.com.au](mailto:kdenaro@powerlink.com.au)

Dear M/s York,

I am writing to you regarding a matter of public importance. Attached is an article, which was published by the Fairfax Media including: the Brisbane Times, the Sydney Morning Herald, the Melbourne Age, the Canberra Times and the WA Today on 29 November 2012.

You will note that the journalist who wrote this article, Mr Michael West, has identified serious issues relating to the status, control, ownership and function of “Grid Australia”. Grid Australia purports to be **“the organisation which represents the owners of Australia’s \$10 billion electricity transmission networks in the National Electricity Market (NEM), plus Western Australia”**.

Mr West’s article indicates that the “Chairman” of Grid Australia, Mr Peter McIntyre, has signed documents on a Grid Australia letterhead which includes the ABN 46 144 749 413. This ABN belongs to a private company owned by a sole shareholder and director from Melbourne, Mr Daniel Rosenberg. There is no reference or listing of Mr McIntyre, as a director of this company on ASIC records.

I note that on the Powerlink website, under the section entitled “Corporate Profile” your company states:

*“Grid Australia represents the owners of Australia’s electricity transmission networks within the NEM, plus Western Australia: Powerlink Queensland, ElectraNet Pty Limited (SA), SP AusNet (Vic) Transend Networks Pty Ltd (Tas), TransGrid (NSW), Western Power (WA).”*

The website also states that Powerlink Queensland is a “member” of Grid Australia!

Given that your Company is listed as a “member” of Grid Australia on your website, would you please clarify the following questions?

- How is Grid Australia related to or owned by Grid Australia Pty Limited the holder of ABN 46 144 749 413?
- What is the relationship between Powerlink Queensland and Grid Australia Pty Limited?
- Does Grid Australia have a constitution or Articles of Association?
- By what authority does Mr McIntyre act as Chairman of Grid Australia and Grid Australia Pty Limited?



- By what authority does Chairman McIntyre initiate legal action against members of the public?
- Has Powerlink made any payments or financial contributions including membership fees to Grid Australia or Grid Australia Pty Limited?
- Does Grid Australia have a bank account, if so, who are the signatories to this account?
- Does Grid Australia have a Governance Protocol?
- Does Grid Australia record and keep minutes and records of meetings and resolutions?
- How is the law firm, Ashurst, paid by Grid Australia?
- Does Grid Australia make any payments and or fees to Grid Australia Pty Limited?
- Grid Australia has been responsible for making a number of Submissions and representations to Government and various other Authorities, are these documents authored by and the property of Grid Australia Pty Limited?
- What action do you propose to take to in relation to this matter?

Thank you for your attention to these important and serious questions and I would appreciate a response at your earliest convenience.

Kind Regards,

Peter Epov  
Chairman

cc

Mr Stephen Rochester, Chairman, Powerlink Queensland.  
Mr Campbell Newman, The Premier of Queensland.  
Ms Michelle Groves, Managing Director, Australian Energy Regulator.

# Finding the real Grid Australia

November 29, 2012 - 4:30PM

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**Michael West**

*Business columnist*

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Danny Rosenberg ... the real chairman of Grid Australia.

When the chairman of Grid Australia, Peter McIntyre, issued a public apology to cattle farmer and electricity activist Bruce Robertson two weeks ago there was one hitch.

It wasn't the apology itself. McIntyre had done the right thing. Governments should not sue their citizens for exercising their right to an opinion and Grid Australia is a peak body after all; little more than a front for the state transmission giants.

The lobby group had sought to muzzle its critic Robertson with an intimidating letter from one of the world's biggest law firms, Ashurst. But it soon recanted and dropped the bully tactic after a public outcry.



Nobody home ... apart from the dog who barked a lot.

The small hitch in the letter of apology, though, was the ABN number which appeared beneath Grid Australia's logo.

The number 46 144 749 413 may seem less than remarkable for the casual observer. Although for Bruce Robertson and his fellow consumer activist Peter Epov, this was the secret code which led to a whole new world of intrigue.

A search of the Australian Securities & Investments Commission (ASIC) database showed this same 11 digit number was registered to Grid Australia Pty Ltd, a company whose sole director was a Daniel Rosenberg of Caulfield South in Melbourne.



The offices of Clemantina in Elsternwick, Melbourne.

The plot had thickened. How could Peter McIntyre – who is also the managing director of NSW transmission juggernaut Transgrid – be the chairman of Grid Australia when this mysterious Daniel Rosenberg was the sole director?

Daniel Rosenberg, born Israel 1974. What was the connection? Was this Peter McIntyre's doppelganger?

It was time for a road trip. Accompanied by a photographer from *The Age*, we attended the Caulfield South address listed on the company search but there was nobody at home in the leafy Melbourne suburb ... apart from the dog who barked a lot.

Not to be discouraged, we then made our way to the registered office – the only other clue of in the ASIC search.

It was here, at the offices of JM Partners in Home Street Elsternwick that the first major breakthrough was struck.

Daniel Rosenberg was nowhere to be seen. His accountant however, Guy Biran, was there. Studying the ABN number quizzically, Biran said he had not heard of the electricity peak body.

"We have heard nothing from them; didn't know they existed," said Biran. Had he heard from Ashurst? "Are they lawyers? What are they?"

Biran explained how he had set up the company for Rosenberg, who was his brother-in-law, two years ago. Danny Rosenberg was a designer over in the nearby suburb of St Kilda.

It was doubtful, said Guy Biran, that Danny would know much about the electricity transmission people either. He was right.

Danny Rosenberg was out that day but we spoke with him over the phone. He operates a graphic design company, Clemantina, and claimed very convincingly to have never heard of Transgrid, nor Grid Australia's other five members: SP-Ausnet, South Australia's ElectraNet, Powerlink Queensland, Transend Networks in Tasmania or WA's Western Power for that matter.

"I'm Grid Australia. That's my company," Rosenberg told us. "You say that someone is using my actual ABN number?"

"Why did I call myself Grid Australia? I'm a designer and manufacturer. I wanted to register (the name) Grid. We did the search. Grid was already taken but the next best thing was Grid Australia."

Had he had any dealings with the other Grid Australia – the interloper? No, nor their lawyers either. What did Danny Rosenberg think of this confusing situation?

"I think this whole story is crazy!"

And there the mystery stands for now. Questions were put to Grid Australia and Ashurst early this week. There has been no response.

It would seem Grid Australia – the peak body that is, as distinct from the legally-registered though lesser-known Grid Australia Pty Ltd – has no right to be threatening legal action, let alone taking it, as it is not a registered entity.

Grid Australia has used the same ABN under its logo in its Senate submissions, available on its website.

The networks lobby group was formerly known as ETNOF - Electricity Transmission Network Owners Forum – but changed its name to Grid Australia in 2008.

According to the website, there is little evidence of a board or a formalised structure, minutes of meetings, membership fees. It just lists Transgrid employees as contacts. Transgrid is owned by the state.

So we have a situation, effectively, where the NSW government has threatened a citizen with legal action to curtail his right to speak out about the electricity industry. This has come at a time when it is preparing to privatise its transmission and distribution assets.

\* Some further digging shows that the domain "[gridaustralia.com.au](http://gridaustralia.com.au)" is registered to the "Queensland Electricity Corporation Limited", ABN 82078849233, which owns the trading name "Powerlink", the Queensland TNSP.

#### According to A New Tax System (Australian Business Number) Act 1999, Section 23:

##### Identification offences

- (1) \* You must not purport to identify yourself by using:
- a number that is not an \* ABN as if it were an ABN; or
  - an ABN that is not your own.

Penalty: Imprisonment for 2 years.

- (2) \* You must not purport to identify an \* entity that is an \* associate of yours by using:
- a number that is not an \* ABN as if it were an ABN; or
  - an ABN that is not the entity's own ABN.

Penalty: Imprisonment for 2 years.

- (3) \* You commit an offence if:
- you purport to identify yourself as being registered under this Act as the representative of an \* entity; and
  - you are not the registered representative of the entity.

Penalty: Imprisonment for 2 years.

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##### 60 comments

«»

»The NEM, and the sale of assets of the former Electricity Commission of NSW, has been a debacle which has only benefited incumbent managers of utilities and regulators (and, of course a few ex-politicians) as they moved from the tit of the public service to the cream of executive pay in the new corporatized entities. They appear to know nothing about risk, probity and market discipline.«

»«

Disgusted | Sydney November 29, 2012, 2:34PM



« »«

»You got it in one, that's what most polities are all about these days.  
Sell Govt assets then transition to an executive job in said industry sector.«

»Nice work if you can get it !«

»«

**Got it in one** | Executive Suite November 29, 2012, 3:22PM

« »«

»I must say I personally feel your not wrong ... I'm pretty sure that I read that these guys are on massive incomes with their principle tax payer/utilities payer funded wages along with bonuses and 26% superannuation, albeit through their principle income companies such as McIntyres Transgrid! Wonder if they pay for their own power as well??? So glad Michael West took an interest in Robertson and Epov and their Manning Alliance! Like other readers I can hardly wait for the next edition! What intrigues will be next? I even heard it has been mentioned in Parliament ... BTW Where are our politicians who are supposed to represent us in regards to issues such as this. Where is Steven Bromhead, the local member for Bruce Robertsons' area in all this ... Surely he should be getting involved. But, alas a bit quiet it seems!!! Mmmmmmm .... Could be yet another chapter Michael!«

»«

**JenGMA** | November 29, 2012, 5:06PM

« »«

»Thanks Michael for everything you have done on this issue!  
My question to anyone.. does Grid Australia Pty Ltd, the one of Transgrid fame, have an ABN? If so the wrong ABN number could easily be a simple mistake made by the lawyers. On the other hand if Grid Australia Pty Ltd don't have an ABN then everyone involved need to have the book thrown at them. Threatening to destroy someone financially for standing up for their community is a pretty terrible offence, plus it was on behalf of state owned organisations, and under false pretences?? Jail is where people like that belong, in the stall next to mr obeid and everyone else who would turn Australia into a corrupt third world nation.«

»«

**Jonesy** | Sydney November 29, 2012, 2:36PM

« »«

»Jonesy, you seem a bit confused there (understandable, this whole mess is somewhat confusing).«  
»Grid Australia Pty Ltd is a registered company, and as such has an ABN derived from its ACN. It belongs to a graphic designer in Melbourne and appears to have nothing whatsoever to do with the association of electricity distributors calling itself Grid Australia.«  
»The association of electricity distributors, once called ETNOF - Electricity Transmission Network Owners Forum, renamed itself to Grid Australia, apparently without registering the name, or even checking to see if it was already used, something that is at the very least incompetent given this is an association of multi billion dollar state-owned enterprises. As this Grid Australia is not a legal entity, it cannot have an ABN.«  
»My guess is that somebody at Transgrid did an ASIC search to find the ABN and grabbed the Grid Australia Pty Ltd details incorrectly assuming it belonged to the association.«  
»The rest, as they say, is an unfolding debacle.«

»«

**Michael** | November 29, 2012, 2:55PM

« »«

»Ahhhhh... read the article! «  
»"It would seem Grid Australia – the peak body that is, as distinct from the legally-registered though lesser-known Grid Australia Pty Ltd – has no right to be threatening legal action, let alone taking it, as it is not a registered entity."«  
»In other words - there is only one Grid Australia P/L and only one ABN. The other Grid Australia is just a name. Mr Robertson has as much to worry about if the threat of legal action came from Nigeria.«  
»Where on earth is BOF and his dopey sidekick Hartcher in all this? Hiding under the table I presume.«

»«

**Lucas** | November 29, 2012, 3:03PM

« »«

»I'd love to be a fly on the wall at Ashurst.«

»«

**Olaf** | November 29, 2012, 3:05PM

« »«

»@ Lucas - Was BOF and Hartcher in government at the time of the name change, 2008?.«  
»Maybe the then Labour government could have utilised the services of a senior federal member who was a former lawyer to set the association up correctly.. :)«

»«

**Ryan** | Sydney November 29, 2012, 3:56PM

»«

»Yep Im mixed up. It is just very hard to believe that a letter like this that has no justification at all can be sent, by a major law firm no less. In the words of Derren...



SHAME SHAME SHAME«

»«

Jonesy | Sydney November 29, 2012, 4:08PM

« »«

»Its a shame you didnt keep this under your hat and invite them to sue you.... imagine the judges reaction when you reveal they are not even a legal entity, and/or are comitting fraud.«

»Such basic incompetence just demonstrates how they conduct thier business. «

»So when will ATSIC or the police be investigating this fraud? especially if they have been trading under the name.....«

»Though dont rely on ATSIC to actually do anything.... toothless beast they are. they will probably send "Ausgrid Australia" a strongly worded letter if anything.«

»«

Markus | November 29, 2012, 4:10PM

More comments

Comments are now closed

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Released under RTI - DPC

**Sarah Partosh**

---

**From:** s.73 Personal Information [redacted]@gmail.com>  
**Sent:** Sunday, 2 December 2012 8:55 AM  
**To:** The Premier  
**Cc:** [redacted]  
**Subject:** Notice of Harm

To Campbell Newman The Premier of Queensland and campbell newman his agent, all ministers and members of the current LNP Government, the Government Departments and public officers. As a majority party and public officials, and for your actions supporting the Coal Seam Gas operations, you are now being put on notice of issues that could leave you open to having charges laid against you under the criminal code or in the civil courts, Tort law, the Civil liabilities act. Natural and probable consequences, Malice, Damage to property, Duty to do certain acts, Persons in charge of dangerous things. The United Nations Rights of the Child, Queensland Child protection act: Chapter 2 part 1 Article 36 Other forms of exploitation, and many other acts or state or federal laws. You have now been put on notice that your actions, or your part played in the exploration and production activities of coal seam gas, that could lead to injury, death, economic loss or pollution to land, sea, ground water, under ground water, air, streams, rivers and lakes. You have now been put on notice and as such now become liable under law if you fail in your DUTY OF CARE IN THESE MATTERS. You have been put on notice [redacted]

In support of this notice I include the following youtube clips.

1. <https://www.youtube.com/watch?v=03O2siJD86A>

This indicates that the government is allowing a foreign entity to potentially influence Queensland Health, I'm sure your electorates would be appalled by the action of the government allowing this disgrace to occur. This lack of due diligence should in fact be enough for the commissioning of a royal commission into the lack of separation between this foreign entity and the government that supposedly polices it. The government is also negligent in testing the contaminants from these ponds, and I don't mean allowing a foreign entity to monitor itself, that does not and will not be acceptable to Australians once they become aware.

<https://www.youtube.com/watch?v=y2W0AK-fL-I>

2. <https://www.youtube.com/watch?v=K04taMEqIac>

Unless proven not to be the case, this clearly, in my opinion, indicates spraying of toxic water onto the roadways, a complaint repeatedly made about the actions of the Coal Seam Gas Industry, a foreign company committing environmental damage to our Nation, support of this must be seen as treason surely. Small children live along this road, how is your government protecting them?????

3. <https://www.youtube.com/watch?v=SMPtWT6RsF4>

This brief clip shows the precious Condamine River bubbling gas, part of our Murray Darling River network and Basin, the industry and the Government states this was naturally occurring and has happened for decades, we will produce a clip that denies this statement, locals are saying this is not the case, where did your departments get this information????? With this gas there are also the other contaminants present in Coal Seams, how are you protecting the health of Queensland's human population, its flora and fauna??? I would challenge you to prove this is naturally occurring, if not then you are negligent in your duty.

4. <https://www.youtube.com/watch?v=-fwhUgWT5b0>

This clip, you are very aware of, we have some additional development that will also be posted, including your Public Officer Ian Heiner stating on camera he has seen the bore ignite. This clip was made the evening before the inspection shown in the following clip.

<https://www.youtube.com/watch?v=BJ9wfGqCOWc>

Now how can one of your public officers return a no gas present at flammable levels result when he has in

fact seen the bore ignite. More clips to follow on this as well.

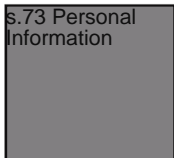
On an earlier inspection by your gas inspectorate, Matheson, Watt, Carr and one other, they found nothing flammable, all captured at a professional standard and soon to be release, and as they drive away we ignite the bore. We don't have this footage, otherwise it would be attached, but I'm sure will be available should it be needed for court.

I believe the above mentioned issues should be enough to cause a Royal Commission to be commenced. This may or may not happen, but time will prove all the above issues to be sufficient to have caused the Government to adopt a precautionary principle, not in word alone as is the present case, but in action. I also believe that failure to regulate this industry and by allowing a foreign entity to impact on Australia will be justification for future prosecution.

My interest in this is not financial but in fact a desire to see Politicians and Government public officers imprisoned for the HARM their actions or inactions are causing Australians and Australia.

This is my first Notice to you and your government and all the departments and officers, take action seriously, you have been Noticed.

§.73 Personal Information



Released under RTI - DPC

**Sarah Partosh**

---

**From:** s.73 Personal Information [redacted]@tpg.com.au>  
**Sent:** Tuesday, 4 December 2012 11:12 AM  
**To:** The Premier  
**Subject:** [redacted] Coal Seam Gas Mining

Dear Mr Premier

I write pleading for you to put a big pause on coal seam gas mining in your state.

I specially ask you to do something for [redacted] and those in very similar circumstances to her in Tara and its environs.

Last Christmas her children spent being sick on the couch. It looks like Christmas 2012 is going to be similar or worse.

To hear [redacted] and others like her in tears on the radio is just gut wrenching. She and her family can't get lost time back - no one can.

Why does her situation have to be like it is?

I am humbly, but strongly, asking you to act from a human point of view before some of these people break and do something tragic to themselves and/or others.

I also believe this to be a matter of justice, compassion and basic human rights.

Being a politician and in government can be a thankless task. Dealing with the fickleness of people and their wants and desires means you can't please'em all! So, I thank you for being there and fielding messages such as mine.

One of the gifts of Christmas is hope. Is it too much to ask that you offer some hope to [redacted] and her ilk this Christmas?

From late 1975 to 1989 I spent some marvellous years in the Callide Valley and Rockhampton. My vocation then brought me to the southern states. I now live in retirement in Mildura, Victoria.

I truly wish you and your family a blessed Christmas and good wishes for 2013.

Yours faithfully

[redacted]

Released under RTI - DPC





Hon Andrew Cripps MP  
Minister for Natural Resources and Mines

CLLO/CIC/12129

5 DEC 2012

The Honourable Campbell Newman MP  
Premier of Queensland  
PO Box 15185  
CITY EAST QLD 4002

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Dear Premier

I am writing to you regarding the national harmonised regulatory framework (the framework) for coal seam gas (CSG), seeking your urgent approval of the proposed Queensland Government position on the framework, and for me to endorse its release for public consultation at the next Standing Council on Energy and Resources (SCER) meeting on 14 December 2012.

The framework has been developed under the auspices of SCER and is intended to be a guidance and reference tool for regulators on what constitutes leading practice in the areas of well integrity, water management and monitoring, hydraulic fracturing, and chemical use. For your reference, please find attached the latest version of the draft framework which has been received by the Department of Natural Resources and Mines (refer **Attachment 1**).

Eighteen leading practice strategies have been identified to mitigate the identified impacts associated with CSG development and to build a robust national regulatory regime. I have been advised that Queensland's existing regulatory framework for CSG is already consistent with the leading practice strategies identified in the draft framework (refer **Attachment 2**).

It is intended that SCER Ministers convey a position on behalf of their respective governments on the leading practice strategies in the framework, the proposed implementation approach, and the release of the draft framework for public consultation at the 14 December 2012 SCER meeting.

Exempt Sch.3(2)(1)(b) Revealed Cabinet consideration

I therefore seek your approval to communicate the Queensland Government's support of the draft framework to SCER, and to endorse the draft framework for release to public consultation. Your approval of the Queensland Government's position on the framework would be appreciated by 12 December 2012, in order for me to be able to present it at the 14 December 2012 SCER meeting.

Pending the endorsement of the draft framework by jurisdictions, the Commonwealth Government will release the draft framework for public consultation from mid-December 2012 to mid-February 2013. I have been advised that the final framework will be brought to SCER for approval in 2013, after comments from the public consultation process are considered.

I look forward to receiving your response and, if you have any questions about my advice to you, Ms Susan McDonald, Chief of Staff, will be pleased to assist you and can be contacted on telephone 3227 8070.

Yours sincerely



**Andrew Cripps MP**  
**Minister for Natural Resources and Mines**

Enc.

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# A National Harmonised Regulatory Framework

Coal Seam Gas

2012

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A joint report by the Australian Commonwealth Government  
and state and territory governments



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## PREFACE

The National Harmonised Regulatory Framework (the Framework) is a guidance and reference tool for Australian federal, state and territory government regulators for the coal seam gas (CSG) industry. Its purpose is to provide a suite of national and global leading practices to consider and implement in the assessment and ongoing regulation of proposed projects for CSG exploration and production. The Framework is an important demonstration that governments are listening and responding to community concerns and are working together to strengthen regulation and ensure there is a balance between protecting social and environmental values and achieving economic outcomes. Consistent with this approach, the Framework also acts as a guide to industry on what leading practice regulation is, providing greater certainty and consistency for CSG operators.

Other forms of unconventional gas fall outside the scope of this Framework. The issues and findings relating to CSG may not be equally applicable to other forms of unconventional gas such as shale gas and tight gas. Comparisons have frequently been drawn between shale gas developments in the United States and CSG developments in Australia. Although shale gas and CSG have some common exploration and development procedures, the geological and hydrological issues that apply to different forms of unconventional gas are also significant.

Australian CSG production began in Queensland in 1997. In the five years to 2010–11, CSG production increased from 2 per cent to 11 per cent of Australia's total gas production. To date, growth has occurred predominantly in Queensland, with a small but growing contribution from New South Wales.

Community concerns over the development of the CSG industry relate to its potential environmental, health and social impacts. For instance, the volume of water produced as a by-product of CSG extraction has raised concerns that the industry may damage or unsustainably deplete aquifers on which farmers, rural towns, and ecological communities depend. The failure of wells and the impact this could pose with respect to the contamination of potable aquifers is also pertinent.

Hydraulic fracturing has been a topic of public concern, specifically with respect to the use of chemicals and the risk of contamination to the environment. In addition, the treatment and management of waste water, streams and salinity issues have raised questions over possible implications for human and animal health and food production.

Another point of contention is industry access to CSG resources on privately held land, particularly that used by the agricultural sector. This has raised issues regarding the rights of individual land owners to limit access, rights of resource ownership, and the magnitude of compensation afforded to landowners for their costs, reduced amenity, and any reduction in agricultural production.

The concerns and issues raised by the community regarding CSG development in Australia to date have warranted the attention of governments and industry to acknowledge and address the calculated and perceived risks associated with CSG. As a result, in December 2011, governments – through the Standing Council on Energy and Resources (SCER) – have responded to community concern about the impacts of the CSG industry by agreeing to develop the Framework. The work program was selected to address the areas of community concern highlighted above through the following core areas:



- well integrity and aquifer protection
- water management and monitoring
- hydraulic fracturing
- chemical use.

Community concern pertaining to land access and land use is being addressed through the separate, but related, initiative under the SCER work program to develop a Multiple Land Use Framework – an overarching work program that incorporates the National Harmonised Regulatory Framework on CSG as an important part of its agenda.

The Framework on CSG considers each of the four core areas associated with CSG development. Its scope includes:

- exploration and production activities associated with well infrastructure and its decommissioning
- whole-of-life considerations for co-produced waters (and contained compounds) including treatment, on-supply and disposal
- hydraulic fracturing; chemical use and management before, during and after any associated activities
- potential impacts on water resources (both surface and groundwater) caused by CSG activities, including hydraulic fracturing, CSG production and failed well integrity
- handling and disposal of materials and fluids from the CSG process, including produced gas, treated water, brines, drilling muds and flow-back water.

The methodology for preparing the Framework consisted of government, industry and community consultation, supported by research and analysis. The Commonwealth, all state governments and the Northern Territory Government participated in the development of the Framework as part of the Coal Seam Gas Steering Group. The steering group was supported by a stakeholder reference group comprising national peak bodies, and external advice and analysis through the following commissioned studies:

- (a) Multiple Land Use Framework Research Study (Sinclair Knight Merz)
- (b) A Leading Practice Framework for Coal Seam Gas Development in Australia (Sinclair Knight Merz)
- (c) Coal Seam Gas Legislative Review (Norton Rose Australia).

## CONTENTS

PREFACE.....	3
CONTENTS .....	5
EXECUTIVE SUMMARY.....	7
Towards sustainability and co-existence.....	7
Applying leading practice in CSG regulation .....	8
CHAPTER 1: TOWARDS SUSTAINABILITY AND CO-EXISTENCE.....	10
Economic, environmental and social aspects.....	11
The participants.....	11
An environment that delivers beneficial outcomes for all participants.....	12
Governments' role to ensure a balanced outcome.....	15
The Framework.....	15
CHAPTER 2: APPLYING LEADING PRACTICES.....	17
Application of leading practice.....	18
Overarching leading practices.....	20
Analysis.....	24
Environmental impact assessment.....	25
Environmental management plans.....	26
Hierarchy of risk control.....	26
Verification of system elements.....	27
CHAPTER 3: WELL INTEGRITY.....	28
Well integrity in CSG development.....	31
Leading practices.....	32
Analysis.....	34
Strong governance and standards in well development.....	34
Independent supervision of well construction and blowout preventers.....	37
CHAPTER 4: WATER MANAGEMENT AND MONITORING.....	38
Water in CSG development.....	39
Leading practices.....	42
Analysis.....	44
Baseline and ongoing monitoring.....	45
Regional-scale water assessments.....	46
Accounting for and managing co-produced water.....	47
Maximising re-use of extracted water.....	51
CHAPTER 5: HYDRAULIC FRACTURING.....	53
Leading practices.....	56

Analysis .....	57
Geological assessments .....	58
Monitoring and quality control during hydraulic fracturing .....	58
CHAPTER 6: CHEMICAL USE .....	61
Chemical use in CSG operations .....	62
Leading practices .....	63
Analysis .....	65
Handling and management .....	66
Minimise chemical use and adopt benign alternatives .....	67
Minimise time and maximise rate of recovery in hydraulic fracturing .....	67
Transparency in chemical assessment processes and chemical disclosure .....	67
Risk assessment of combined chemical mixtures .....	70
APPENDIXES .....	71
APPENDIX 1: COAL SEAM GAS – AN OVERVIEW .....	71
CSG activities and water .....	73
APPENDIX 2: AUSTRALIA’S REGULATORY REGIME FOR CSG .....	76
Good regulatory practice in Australia .....	76
Legislation for management of CSG production is generic .....	77
Regulatory approach is ‘layered’ .....	77
Objective-based regulation .....	77
State and territory and Commonwealth responsibilities .....	78
Key regulatory issues .....	78
Water management and monitoring .....	78
Well integrity .....	79
Hydraulic fracturing and chemical use .....	79
Other issues – land use .....	79
GLOSSARY .....	81
REFERENCES .....	85



## EXECUTIVE SUMMARY

### Towards sustainability and co-existence

Since 2006–07, CSG production in Queensland and in New South Wales has grown from 99 petajoules (PJ) to 239 PJ, making up 11 per cent of total Australian gas production in 2010–11. In addition, there are three CSG-based LNG processing facilities under construction in Queensland to supply the export market. This surge of activity has placed pressure on land and water resources and, at times, outraged local communities. The sustainable development of the CSG sector in Australia requires a balanced consideration of economic, environmental and social aspects of CSG activities.

Australia cannot reap the benefits from CSG development if industry's social licence to operate and resulting community confidence have not been established. The successful development of the CSG industry depends on Australian governments, industry and the community working together. In particular, governments should aim to provide a policy and regulatory setting that encourages the growth of the industry, within a regime of relevant, enforced conditions and legislation to protect the environment and facilitate social development and sustainability.

The environment to best meet the needs of all participants should be underpinned by the principle of co-existence. This is where a shared commitment exists among the resources industry, other land users and governments to multiple and sequential land use; better informed public discourse on resource development; merit-based land access that provides certainty for industry and improved community confidence in land use decision-making; and finally, the delivery of better outcomes for affected communities. Sustainable development of the CSG industry will be underpinned by the guiding principles of the Multiple Land Use Framework. These principles, when applied by industry, other land users, the community and governments, demonstrate a commitment to maximising the social, economic and environmental value of land and marine environments.

Governments play a crucial role as the regulators of the CSG industry to deliver regulation that is effective in managing CSG activities and efficient in terms of maximising the benefits to the community. Importantly, governments are also educators by providing key messages and information to assist the general public, the CSG sector and the media.

Current legislative arrangements of the Commonwealth and state and territory governments provide a sound mechanism for managing CSG exploration and development activities. Common elements for these regulatory systems include legislation for the protection of human health, conservation of the environment, protection of property rights and multiple land use.

The National Harmonised Regulatory Framework for CSG responds to community concerns about the potential environmental, health and social impacts of CSG development. It provides guidance on what constitutes leading practice in the core areas of well integrity, water management and monitoring, hydraulic fracturing and chemical use. Applied in conjunction with existing regulatory mechanisms, the Framework provides a consistent approach to managing CSG development from a regulatory perspective. While its primary purpose is to be a guidance document for governments, the Framework will benefit the

community and industry by providing increased levels of consistency, certainty and transparency in the management of CSG development in Australia.

### Applying leading practice in CSG regulation

The application of the leading practices identified in this Framework will instil a shared commitment among governments to apply a consistent and leading approach to the management of CSG in each jurisdiction, with better informed public discourse through increased transparency and consistency in decision-making on CSG development.

In applying the leading practices, governments should implement streamlined, transparent and consistent processes by which CSG activities are managed in accordance with the level of risk. Leading practices should include effective planning mechanisms where governments, with industry, recognise the community's expectations, participation by communities, and proactive engagement and education informed by facts and conducted in good faith.

Successful implementation of the Framework will also depend on the willingness of industry to further embrace social and environmental responsibility and adopt leading practice, and the community's readiness and openness to engage with governments and industry.

A total of 18 leading practices have been identified to mitigate the identified potential impacts associated with CSG development and build a robust national regulatory regime for the CSG industry (Table ES 1). Many of these practices are capable of addressing multiple impacts. Four of the leading practices are overarching strategies that are equally relevant to all four core areas of CSG development addressed under the Framework. The remainder apply more specifically to each of the core areas of well integrity, water management and monitoring, hydraulic fracturing and chemical use.

Table ES.1: Summary of leading practices for CSG operations

Key: ✓ Leading practice primarily applies to this core area and is discussed within its respective chapter  
 ✓ Leading practice also relevant to this core area

Table ES.1: Summary of leading practices for CSG operations					
Practice ID	Description	Well Integrity	Water Management and Monitoring	Hydraulic Fracturing	Chemical Use
1	Undertake a comprehensive environmental impact assessment, including but not limited to, rigorous chemical, health and safety and water risk assessments	✓	✓	✓	✓
2	Develop and implement comprehensive environmental management plans which demonstrate that environmental impacts and risks will be as low as reasonably practicable	✓	✓	✓	✓
3	Apply a hierarchy of risk control measures to all aspects of the CSG project	✓	✓	✓	✓
4	Verify key system elements, including well design, water management and hydraulic fracturing processes, by a suitably qualified and authorised person	✓	✓	✓	✓
5	Apply strong governance, robust safety practices and high design, construction, operation, maintenance and	✓	✓	✓	✓



	decommissioning standards for well development				
6	Require independent supervision of well construction	✓			
7	Ensure the provision and installation of blowout preventers informed by a risk assessment	✓			
8	Use baseline and ongoing monitoring for all vulnerable water resources		✓		
9	Manage cumulative impacts on water through regional-scale assessments		✓		
10	Ensure co-produced water volumes are accounted for and managed		✓		
11	Maximise the recycling of co-produced water for beneficial use, including managed aquifer recharge and virtual reinjection		✓		
12	Require a geological assessment as part of well development and hydraulic fracturing planning processes		✓	✓	
13	Require process monitoring and quality control during hydraulic fracturing activity			✓	✓
14	Handle, manage, store and transport chemicals in accordance with Australian legislation, codes and standards			✓	✓
15	Minimise chemical use and use environmentally benign alternatives			✓	✓
16	Minimise the time between cessation of hydraulic fracturing and flow back, and maximise the rate of recovery of fracturing fluids			✓	✓
17	Increase transparency in chemical assessment processes and require full disclosure of chemicals used in CSG activities by the operator			✓	✓
18	Undertake assessments of the combined effects of chemical mixtures, in line with Australian legislation and internationally accepted testing methodologies			✓	✓

The application of the leading practices identified in this Framework, will build public confidence in the operation of the CSG industry. It will also deliver a balanced message about the challenges associated with CSG development and how these are being addressed to deliver the greatest net benefit to Australia.

## CHAPTER 1: TOWARDS SUSTAINABILITY AND CO-EXISTENCE

### KEY POINTS

- ❖ Sustainable development means that investment in CSG projects should be financially profitable, environmentally sound, technically appropriate and socially responsible.
- ❖ The environment to best meet the needs of all participants should be underpinned by the principle of co-existence. This is where a shared commitment exists among the resources industry, other land users and governments to multiple and sequential land use; better informed public discourse on resource development; merit-based land access that provides certainty for industry and improved community confidence in land use decision-making; and finally, the delivery of better outcomes for affected communities. Sustainable development of the CSG industry will be underpinned by the guiding principles of the Multiple Land Use Framework, which, applied by industry, other land users, the community and governments, demonstrate a commitment to maximising the social, economic and environmental value of land and marine environments.

### KEY FINDING

- 1.1 In their role as regulators and educators for CSG activities, Australian governments should further improve their individual and combined efforts in tailoring participation of the community in decision-making, conducting open and constructive engagement with key players and ensuring that access to factual and timely information is available to all stakeholders.

Coal seam gas (CSG), also referred to as coal seam methane or coal bed methane, is a form of unconventional natural gas that occurs naturally within the pores or fractures of coal seams. Coal seams can be found at depths generally ranging from 300 to 1000 metres. CSG consists of approximately 95 per cent methane. The remainder consists of a mixture of other gases that include carbon dioxide, carbon monoxide, nitrogen, and hydrocarbons other than methane.

Australia has significant commercially exploitable deposits of CSG, primarily located in coal basins in New South Wales and Queensland. CSG production began in Australia in 1996 and currently accounts for more than 35 per cent of supply in Australia's eastern gas market. Further information on Australia's CSG sector is in Appendix 1.

## Economic, environmental and social aspects

As in the development of other extractive resource industries, the sustainable development of the CSG sector in Australia requires balanced consideration of the economic, environmental and social aspects of CSG activities.

From an economic perspective, a CSG project needs to be profitable in order to be sustainable. Profit should be generated responsibly for as long as possible by keeping costs to a minimum while maximising revenue. CSG operations can play a significant role in maximising equitable benefits to all stakeholders, including the community, local businesses, shareholders and government, through its contribution to Australia's GDP, tax revenues and job creation.

CSG activities will have an impact on the natural environment in which they occur. Environmental issues, such as groundwater depletion and drawdown, land degradation, increased pressure on marine environments and increased greenhouse gas intensity, can be managed to minimise any impact on the environment through leading environmental management practices. Appropriate steps should be adopted in the planning and operational stages of CSG exploration and production to protect environmental values and minimise long-term liabilities in line with environmental regulation.

The social dimension to achieving sustainability in CSG development requires consideration of how to ensure that future generations have the same or greater access to social and environmental resources as the current generation. The CSG industry can contribute to social sustainability through the development of jobs in local communities, arrested long-term population and service decline, and improved infrastructure. Unless the community is engaged and supportive of a CSG operation, the project will not be sustainable.

Open and honest dialogue and constructive negotiation are critical to developing productive relationships between participants.

### The participants

The community, industry and governments are the key participants in the development of CSG.

In the context of CSG development, the community may be defined as both the geographic community in the operation's area of interest, and as a network of people who are geographically dispersed but are linked together by a shared set of interests or experiences (DITR, 2006). The latter description of community may, for example, apply to the CSG industry when fly-in-fly-out arrangements are in place for employees of the operation.



In determining the needs of a community, it is important to acknowledge that a community is not a homogeneous entity and that members of a community are likely to hold diverse opinions about a CSG project, its activities and the petroleum industry in general. It is important that CSG companies' engagement processes seek views on how the local community is constituted from a broad cross-section of people and that engagement processes are tailored accordingly (DITR, 2006).

The CSG sector's involvement with the community should include both community engagement and community development: two distinct processes to ensure that a CSG operation gains the support of its community members, contributes to the sustainability of the community and leaves a positive legacy. Beneficial community engagement and development could include the development of affordable housing for both CSG companies' employees and local residents, and contributions to infrastructure. It could also include upfront and honest liaison and negotiations and assurance of certainty to residents that CSG activities will contribute to, and not jeopardise, the community's economic, environmental and social prosperity.

Companies operating in the CSG sector aim to be financially profitable in the extraction of resources to supply natural gas to the Australian domestic market and, in the future, to international customers. There is mounting pressure on companies involved in the extraction of non-renewable resources to embed the concept of sustainability into strategic decision-making processes and operations. This ensures that CSG companies seek to maximise financial returns, while also better managing their social and environmental impacts. It is commonly viewed as simply 'a good way to do business' (DITR, 2006).

Australian governments at all levels are focused on achieving a balance between developing a world-class CSG industry, protecting the environment, human health and delivering opportunities and benefits to the Australian community. It is the responsibility of governments to understand and address both the calculated and perceived risks involved in CSG development and adopt positions that address and respond equally to these concerns. Governments are expected to provide a balanced response to the needs of industry and the community. Governments should aim to provide policies and regulations that encourage the growth of the industry, within a regime of relevant, enforced conditions and legislation to protect the environment, human health and facilitate social development and sustainability.

### **An environment that delivers beneficial outcomes for all participants**

To ensure that the needs of participants involved in CSG development are addressed, it is necessary to determine what environment is required to best facilitate this outcome. This environment needs to have a focus on the principle of co-existence, where there is a shared commitment among the resources industry, other land users and governments to: multiple and sequential land use; better informed public discourse on resource development; merit based land access providing certainty for industry and improved community confidence in land use decision-making; and finally, the delivery of better outcomes for affected communities.

The development of the national Multiple Land Use Framework endorsed by the Standing Council on Energy and Resources in 2011 will provide the foundation for a sustainable CSG environment, based on guiding principles, including that of co-existence. The guiding principles, applied by industry, other land users, the community and governments, demonstrate a commitment to maximising the social, economic and environmental value of land and marine environments. The Multiple Land Use Framework will promote the use of adaptive capabilities (leadership, partnerships, planning, engagement, education and

applied learning) and technical solutions (assessment and approvals processes underpinned by sound scientific and engineering guidance and practice). This will improve the efficacy and workability of interactions between industries, including the CSG sector and other significant land users. These guiding principles are outlined below:

**Co-existence:** The rights of all land users and the potential of all regulated land uses should be acknowledged and respected, while ensuring that regulated land is not restricted to a sole use without considering the implications or consequences for other potential land uses, and the broader benefits to all Australians.

**Best use of resources:** Governments should seek to maximise the economic and social benefits of regulated land use for all Australians and future generations through encouraging the multiple use of regulated land, while respecting and protecting environmental, cultural and heritage values.

**Coordinated preparation informed by effective planning:** Governments should coordinate planning (involving government and industry) to recognise the community's expectations and capacity to adapt to land use change. Effective regional-scale planning establishes clear spatial parameters for multiple and sequential land use over time, providing community and investor certainty while retaining the flexibility to adapt to change.

**Tailored participation of communities and landholders in decision-making on land use change:** Participation of communities and landholders should be tailored, targeted and timely. Genuine participation involves communities having the capacity to shape how land use change occurs. Directly affected landholders should be meaningfully informed and consulted in a timely way on multiple land use options and potential for co-existence to promote a greater understanding of mutual benefits and to resolve concerns.

**Engagement and education are paramount to informed debate:** Open and constructive debate and analysis of different multiple land use options should be informed by facts. Stakeholders should be genuine in their willingness to listen and appreciate the views, concerns and needs of other land use stakeholders.

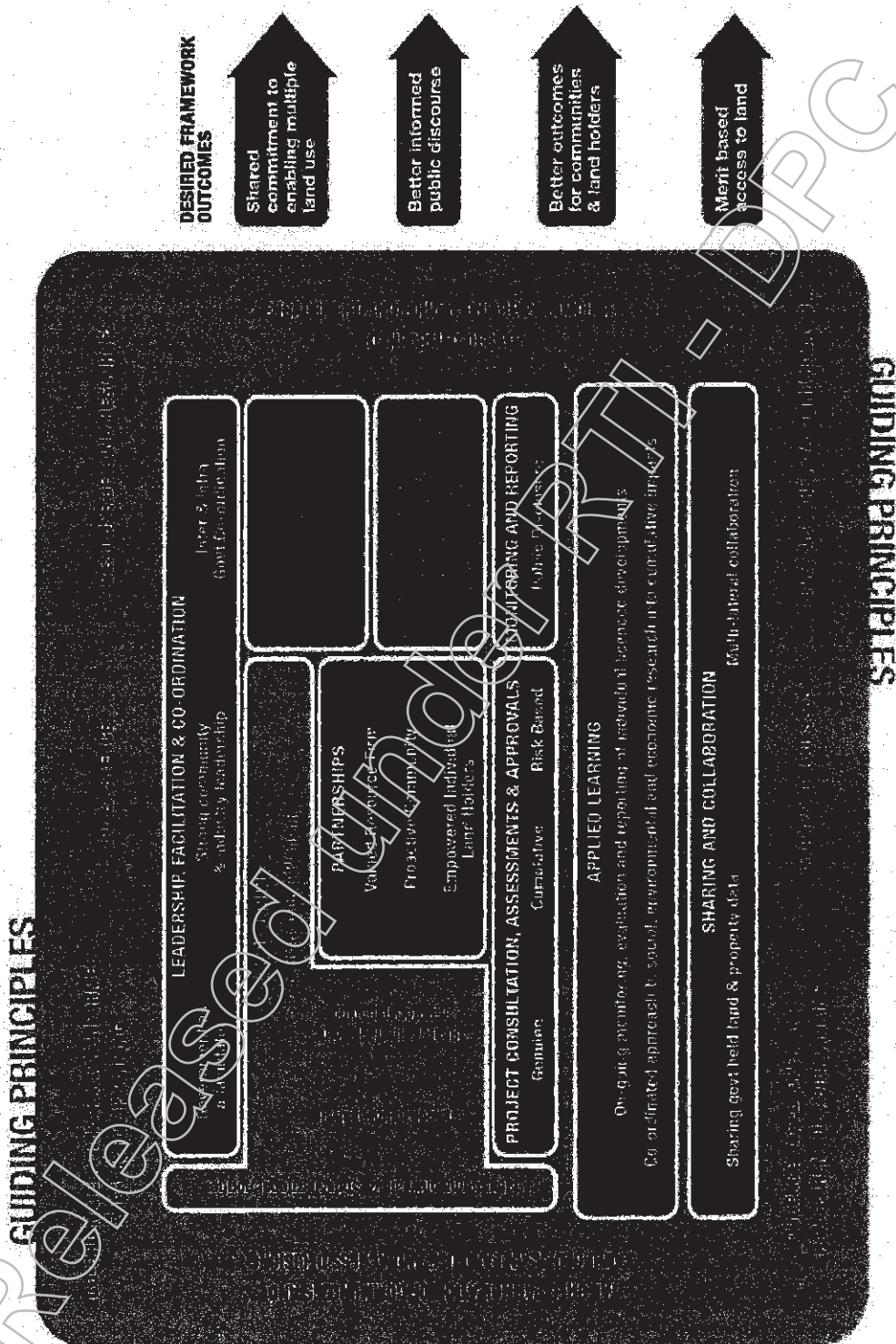
**Decision-making:** Evidence-based decision-making on land use should be informed by risk-based approaches that make transparent the consequences of different land uses. Accountabilities regarding decision-making should be clear and enduring.

**Efficient processes:** Governments should work towards streamlined, transparent and consistent legislated approval processes in which land access for multiple use is handled in accordance with risk. This includes ensuring that processes define multiple and sequential land use of cross-cutting issues (water, heritage and cultural values) based on the best available evidence and sustainable development principles.

**Access to relevant information:** Relevant information about land and resource capability and values, current and proposed multiple and sequential land use, and land management performance should be accessible to all stakeholders. Figure 1.1 provides an overview of the methods and tools in the Multiple Land Use Framework, framed by its guiding principles.



Figure 1.1: Guiding Principles for the Multiple Land Use Framework



SKM 2012 – The Multiple Land Use Framework Research Study Summary Report - Unpublished:

It is critical that the CSG environment developed and facilitated by the guiding principles addresses the needs of each participant (community, industry, and governments) and

produces sustainable outcomes from an economic, social and environmental perspective. Ultimately the goal to be achieved is co-existence, where the needs of each participant are addressed through negotiation and open engagement to achieve the greatest net benefit for Australia.

## Governments' role to ensure a balanced outcome

Governments play a crucial role as the regulators of the CSG industry. Regulations are essential for the proper functioning of society and the economy, and governments face the challenge of delivering regulation that is effective in addressing an identified problem and efficient in terms of maximising the benefits to the community, while taking account of the costs. Determining whether regulation meets the dual goals of effectiveness and efficiency requires a structured approach to policy development that systematically evaluates costs and benefits. A regulatory regime for managing CSG development needs to be robust and as flexible and responsive as possible to facilitate the best outcomes, not only for industry and the Australian economy, but also the wider community and the natural environment. Further information on Australia's regulatory regime for CSG is in Appendix 2.

Governments also play a significant role as educators by providing key messages and information to assist the general public, the CSG sector and the media. In this way, all parties will better understand and appreciate the importance of co-existence in land use, what governments are doing to protect the public interest, and the communities' expectations of resource companies in working with land holders and local community leaders.

As regulators and educators, governments can address both calculated and perceived risks of CSG development pertaining to industry, the environment and communities, and consequently also better manage and mitigate political risk. To this end, there is an opportunity for governments to further improve their individual and combined efforts in tailoring participation of the community in decision-making, conducting open and constructive debates with key players, and ensuring that access to factual and timely information is available to all stakeholders.

The National Harmonised Regulatory Framework for CSG provides guidance to regulators on what constitutes leading practice in the core areas of well integrity, water management and monitoring, hydraulic fracturing and chemical use. Applied in conjunction with existing regulatory mechanisms, the framework provides a consistent approach to managing CSG development from a regulatory perspective. Underpinned by the guiding principles for multiple land use, application of the leading practices in this Framework will lead to evidence-based decision-making in governments' approaches to managing CSG. It will also provide access to relevant information and assist effective planning. While its primary purpose will be as a guidance document for governments, the Framework will also be beneficial for other participants, including the community and industry, by providing increased levels of consistency, certainty and transparency in the management of CSG development in Australia.

## The Framework

The Framework is set out in detail over the next five chapters, in which leading practices applicable to all core areas, and each individual core area, are recommended as guidance to regulators to create a robust regulatory regime for CSG development. Key findings are highlighted in the summary box of each chapter.

- Draft for Officials Use Only -

The application of leading practices identified within this Framework will assist the development of a regulatory environment that provides certainty, consistency and transparency for regulators, industry and communities. This approach will address concerns and minimise potential impacts of CSG development to deliver balanced outcomes for the benefit of Australia as a whole.

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## CHAPTER 2: APPLYING LEADING PRACTICES

### KEY POINTS

- ❖ The application of the leading practices in this Framework will instil a shared commitment among governments to take a consistent and leading approach to the management of CSG in each jurisdiction, with better informed public discourse through increased transparency and consistency in decision-making on CSG development.
- ❖ Successful implementation of leading practices in regulatory regimes will depend on the willingness of industry to embrace social and environmental responsibility and adopt leading practice, and the community's readiness and openness to engage with governments and industry.
- ❖ A total of 18 leading practices have been identified to mitigate the identified impacts associated with CSG development and build a robust national regulatory regime for CSG. Many of these practices are capable of addressing multiple impacts.
- ❖ Four leading practices are overarching strategies that are equally relevant to all four aspects of CSG development addressed under the Framework: well integrity, water management and monitoring, hydraulic fracturing and chemical use. These four practices are outlined and analysed in this chapter. The remaining 12 leading practices relate more specifically to a particular aspect of CSG development and are the subject of chapters 3 to 6.
- ❖ The application of the leading practices by governments through a national harmonised regulatory framework supported by industry practices, will help to build public confidence in the operation of the CSG industry and deliver a balanced message about the opportunities and potential issues of CSG activities.

### KEY FINDINGS

- 2.1 Governments have existing regulatory mechanisms for the management of CSG development in Australia, however a nationally consistent approach of applying leading practices for the regulation of CSG activities is currently not in place.
- 2.2 The sustainable development of Australia's CSG industry relies on governments, industry and communities working together to deliver the best possible balance of social, environmental and economic outcomes for Australia. A strong leading practice regulatory regime for CSG provides a mechanism by which governments, in collaboration with industry and the community, can foster this sustainable environment.



## Application of leading practice

Leading practice systems seek to manage risks by considering and engaging all stakeholders so that outcomes are not just expressed in terms of the financial bottom line and meeting legislative requirements, but rather holistically, ensuring positive financial, social, safety, efficiency and environmental outcomes for all stakeholders.

The application of leading practices in a regulatory regime for CSG will instil a shared commitment among governments to take a consistent and leading approach to the management of CSG in each jurisdiction, to maximise both its economic and social benefits. Leading practices will better inform public discourse by increasing transparency and consistency in decision-making on CSG development. Their application aims to ensure that a balance exists in public discourse about CSG development in Australia and that governments address and manage issues that arise from CSG activities, treating the community and industry on an equal basis.

By applying these leading practices, decision-making relating to CSG development will also be informed by risk-based approaches; decisions made will be evidence-based and accountable. Finally, the application of these leading practices will promote governments' commitment to the principle of co-existence by acknowledging the rights of all land users and the potential of regulated land use, including CSG. At the same time, it will not restrict or favour one form of land use without considering the implications for other potential users and the broader benefits to Australia as a whole.

The leading practices described in this Framework should be employed by governments to build an effective national regulatory regime for managing CSG development. In applying the leading practices, governments should implement streamlined, transparent and consistent processes in which CSG activities are managed in accordance with the level of risk. Furthermore, leading practices should include effective planning mechanisms where governments, with industry, recognise the community's expectations and include participation of communities, where possible, and proactive engagement and education informed by facts and conducted in good faith.

Successful implementation of leading practices in regulatory regimes will also depend on the willingness of industry to embrace social and environmental responsibility and adopt leading practice, and on the community's readiness and openness to engage with governments and industry. The success of the Framework will rely on all stakeholders to be genuine in their actions and willing to listen and appreciate the views, concerns and needs of all affected parties.

While regulations in all jurisdictions have evolved or can evolve to manage the development of the CSG industry, the identification of leading practices provides a robust basis for the development and refinement of legislation, regulations, policies and practices that make up the elements of the Framework for CSG, and importantly provides a consistent approach across jurisdictions to managing CSG development, ensures a level of certainty for stakeholders and delivers consistent outcomes. The process of harmonisation is anticipated to occur in line with each jurisdiction's level of CSG development and management of its CSG industry.

Ultimately, the application of the leading practices by governments through a national harmonised regulatory framework, supported by industry practices, will help to build public



confidence in the operation of the CSG industry and deliver a balanced message about the opportunities and potential issues of CSG activities.

Eighteen leading practices have been identified to manage the development of the CSG industry from a regulatory perspective and to address issues associated with well integrity, water management and monitoring, hydraulic fracturing and chemical use.

Table 2.1: Summary of leading practices for CSG operations

Key: ✓ Leading practice primarily applies to this core area and is discussed within its respective chapter  
 ✓ Leading practice is also relevant to this core area

1	Undertake a comprehensive environmental impact assessment, including but not limited to, rigorous chemical, health and safety and water risk assessments	✓	✓	✓	✓
2	Develop and implement comprehensive environmental management plans which demonstrate that environmental impacts and risks will be as low as reasonably practicable	✓	✓	✓	✓
3	Apply a hierarchy of risk control measures to all aspects of the CSG project	✓	✓	✓	✓
4	Verify key system elements including well design, water management and hydraulic fracturing processes by a suitably qualified and authorised person	✓	✓	✓	✓
5	Apply strong governance, robust safety practices and high design, construction, operation, maintenance and decommissioning standards for well development	✓	✓	✓	✓
6	Require independent supervision of well construction	✓			
7	Ensure the provision and installation of blowout preventers informed by risk assessment	✓			
8	Use baseline and ongoing monitoring for all vulnerable water resources		✓		
9	Manage cumulative impacts on water through regional-scale assessments		✓		
10	Ensure co-produced water volumes are accounted for and managed		✓		
11	Maximise the recycling of co-produced water for beneficial use, including managed aquifer recharge and virtual reinjection		✓		
12	Require a geological assessment as part of well development and hydraulic fracturing planning processes	✓	✓	✓	
13	Require process monitoring and quality control during hydraulic fracturing activity			✓	✓
14	Handle, manage, store and transport chemicals in			✓	✓

	accordance with Australian legislation, codes and standards				
15	Minimise chemical use and use environmentally benign alternatives			✓	✓
16	Minimise the time between cessation of hydraulic fracturing and flow back, and maximise the rate of recovery of fracturing fluids			✓	✓
17	Increase transparency in chemical assessment processes and require full disclosure of chemicals used in CSG activities by the operator			✓	✓
18	Undertake assessments of the combined effects of chemical mixtures, in line with Australian legislation and internationally accepted testing methodologies			✓	✓

As indicated in Table 2.1, of the 18 leading practices, four apply equally to each of the four core areas of well integrity, water management and monitoring, hydraulic fracturing and chemical use. These four practices are outlined below:

#### Overarching leading practices

- 1: Undertake a comprehensive environmental impact assessment, including but not limited to, rigorous chemical, health and safety and water risk assessments**

A comprehensive environmental impact assessment is the process of identifying, predicting, evaluating and planning to mitigate the biophysical, social, and other relevant effects of development proposals prior to major decisions being taken and commitments made (that is, when deciding whether to proceed with a project).

A rigorous impact assessment will:

- ensure environmental and human health considerations are explicitly addressed and incorporated into the development decision-making process
- anticipate and avoid, minimise or offset the adverse biophysical, social and other relevant effects of development proposals
- protect the productivity and capacity of natural systems and the ecological processes which maintain their functions
- promote development that is sustainable and optimises resource use and management opportunities (IIIA 1999).

Australia's existing development planning framework requires environmental impact assessment approvals from the relevant state or territory, and in some cases the Commonwealth, for CSG projects. The requirements for approval typically include an assessment of the potential environmental impacts resulting from the project, usually in the form of an environmental assessment (EA), environmental impact statement (EIS) or environmental impact report (EIR), depending on the jurisdiction.

For CSG operations, the operator should ensure that the environmental impact assessment process includes consideration of:

- requirements for drilling operations which include aquifer protection, noise management and dust minimisation
- predicted potential impacts of CSG operations on the hydrogeological environment (ideally through a numerical groundwater flow model developed with consideration of the National Groundwater Modelling Guidelines (NWC 2012b), subject to peer review and independent audit) and provide for ongoing monitoring to determine changes that have the potential to impact existing users and the environment
- requirements for ongoing monitoring, evaluation, and reporting for hydraulic fracturing activities and use of chemicals (including storage, handling, processing, transport, and disposal) with respect to human health and environmental contamination
- implementation of impact mitigation controls, employment of leading practice strategies, and compliance with relevant legislation, standards, and codes of practice as part of the operation.

The regulator must evaluate the impact assessment and apply suitable risk mitigation conditions to its approval. The regulator must ensure that the operators are complying with the conditions of the licence and that the results are reported transparently. This will require the regulator to have the skills and capacity to deliver these responsibilities.

A comprehensive EA/EIS process will ideally establish an environmental baseline as a reference point for impact prediction and evaluation and analyse interactions between the environment, the project and social impacts. To inform this assessment process, relevant risk assessments should be undertaken specifically to assess potential CSG operations. These include, but are not limited to, a risk assessment of chemical use, water and health and safety with respect to human health, environmental contamination and groundwater protection. Impact mitigation controls should be derived from these assessments to be implemented as part of the operation.

2. **Develop and implement comprehensive environmental management plans which demonstrate that environmental impacts and risks will be as low as reasonably practicable (ALARP).**

An environmental management plan is a project-specific plan developed to ensure that appropriate environmental management practices are followed. The plan translates the options identified in an EA/EIS process into specific environmental protection commitments and assists in ensuring that commitments made in planning and assessment are carried out in all stages of the activities covered by the plan.

An effective, comprehensive environmental management plan will ensure:

- application of best practice environmental management to a project
- implementation of a project's EA/EIS, including its conditions of approval or consent
- compliance with environmental legislation
- appropriate management of environmental risks associated with the project (NSW DIPNR 2004a).



An environmental management plan is required to ensure that the potential environmental impacts of each CSG activity are understood and strategies are put in place to manage or remove those risks. The plan becomes a formal part of the operational procedures. It may include detailed chemical, dangerous goods, and hazardous materials management plans, and applicable safe work procedures. Plans should also include consideration of unexpected or extreme events, such as extreme weather, accidents, or similar.

An environmental management plan should contain the following:

- **a description of the environment** – including any relevant sensitivities and cultural, historical, social, biological and economic aspects that may be affected by the operation
- **a description of environmental effects and risks** – that identifies and evaluates environmental risks and assesses the risks of potential effects on the environment resulting from reasonably possible activities of the operation or incidents that are not normal activities of the operation
- **environmental performance objectives and standards** – including measurement methods for determining whether the objectives and standards have been met
- **an implementation strategy for the plan**

Specifically, in relation to well integrity, the plan should:

- state how the drilling process is to be managed, controlled and monitored
- contain leading practice for management of drilling fluids, cuttings, fines, diesel and other potentially harmful substances on site. All storage containment for drilling fluid should be appropriately constructed to prevent run off to surface water features or infiltration to groundwater. Drill cuttings and fluids should be disposed of in an approved location
- include arrangements for the transport and storage of chemicals used in the drilling process and disposal of solid waste (cuttings and fines) by either remediation on site or transportation off site to an appropriate disposal site.

Leading practice for environmental management plans with respect to the management of co-produced water should:

- undertake assessments to identify site-specific environmental issues associated with use and disposal at each site
- eliminate risks where possible through good design
- adopt and implement procedures designed to reduce environmental impacts set specific objectives that achieve agreed outcomes
- set standards for collecting and reporting data showing compliance with outcomes specified in the plan
- make management measures specific, actionable and measurable
- publicly release documents, providing for transparency and accountability.

The plan should give particular attention to hydraulic fracturing to mitigate any potential adverse environmental impacts. It should state how the hydraulic fracturing process is to be managed and monitored, including the use of chemicals. In addition, arrangements for

ongoing monitoring, evaluation, and reporting on procedures and protocols for chemical handling and storage should be specified.

### **3: Apply a hierarchy of risk control measures to all aspects of the CSG project**

A hierarchy of risk control measures is a sequence of options that offer operators a number of ways to approach the hazard control process. Using a hierarchy of control ensures that risks are dealt with in an order of priority, where most effective risk controls are addressed first, with less effective options considered thereafter. The higher up the hierarchy the risk control is, the more effective the control. In some instances, the best solution may involve more than one control. Administrative controls must be used in combination with other controls.

Risk cannot be completely eliminated from any system, but it can be mitigated by undertaking a formal assessment of the risks inherent in the system and determining how they can be minimised to be as low as reasonably practicable while simultaneously meeting community expectations. This should be done by conducting a risk assessment for all aspects of CSG development, including water management and monitoring, well development, hydraulic fracturing and chemical use processes, and waste management, and applying a hierarchy of risk control process to implement appropriate risk control measures.

Risk assessments should include operational issues (such as risk of production outages), safety issues (risk to people and property) and environmental risk (risk of adverse impacts, for example due to unmanaged release of gas or untreated co-produced water to the environment, or due to contamination due to chemical use).

Consideration of unexpected or extreme events, such as extreme weather, accidents, or similar, on the design of hazard management strategies is also required as part of a hazard assessment.

The performance of risk control measures should be routinely assessed on a fit-for-purpose basis with operators reporting on, and regulators probing, the efficacy of measurements, record keeping and trend assessment of failure and incidents, including 'near misses'.

Approval and operating licence conditions should specify compliance with relevant legislation, standards, and codes of practice in order to eliminate or mitigate potential risks to human health or the environment. In addition, the operating licence should contain requirements for ongoing monitoring, evaluation, and reporting on compliance with the operating licence requirements.

Leading practice for hazard assessment is considered to be:

- undertaking risk assessment during the design phase with the intent of improving design so that risks are minimised or minimised to as low as reasonably practicable and effectively managed
- implementing operational practices and procedures that reduce risks to as low as reasonably practicable
- implementing proactive operations and maintenance practices that are tailored to prevent and rectify developing problems before failure
- undertaking regular and timely reviews of procedures (for example, assess management systems for fitness for purpose) to improve current practice



- implementing a formal learning and improvement program to enable practices to be improved by operational experience.

**4: Verify key system elements, including well design, water management and hydraulic fracturing processes, by a suitably qualified and authorised person**

The primary objective of verifying key system elements is to improve the accountability of the operator, which will improve legal enforceability by the regulator.

Verification should be undertaken by a qualified professional who is able to certify that the relevant model, plan, construction, deployment, or other requirement is fit for purpose, has been developed by a qualified professional, and meets work health and safety and environmental objectives. The verifying individual may be a suitable senior in-house representative or independent third-party professional. The essential outcome is that the authorised person is able to meet the primary objective of improving accountability.

Verification should include well integrity plans, variations to design, construction, post completion of well and decommissioning, which are all key elements in achieving well integrity and therefore the protection of aquifers and other water resources. A post completion report prepared by a competent person should also be submitted to the regulator, detailing the well construction and potential variations from the well design. This will help ensure that there are appropriate safety margins to mitigate work health and safety and environmental risks, including risks associated with potential fracturing and operating pressures.

With respect to the management and monitoring of co-produced water, key system elements to be verified or signed off include monitoring programs, pipeline design, water treatment, water storage facilities such as ponds or dams, and beneficial use plans (for example, irrigation management plans, surface water release, and re-injection system designs).

To ensure the protection of surrounding aquifers during the hydraulic fracturing process, key elements of the hydraulic fracturing program, such as modelling and planning, variations to design, and the hydraulic fracturing process, should be verified. It is also recommended that a verified fracturing completion report be submitted to the regulator to ensure that there are appropriate safety margins to withstand potential fracturing and operating pressures. The post completion report should be made available to the public if required.

## Analysis

The principles of ecologically sustainable development defined by the COAG-endorsed National Strategy for Ecologically Sustainable Development (1992) guide Australian governments' policy and decision-making processes, and are promoted in federal, state and territory environmental legislation and government policy frameworks. Under environmental legislation, companies, including CSG operators, have an obligation to address the principles of ecologically sustainable development in their operations to ensure the needs of Australians today are met, while conserving our ecosystems for the benefit of future generations.

Leading practice in ecologically sustainable development management is an evolving discipline. As new problems emerge and new solutions are developed, or better solutions are devised for existing problems, it is important that leading practice be flexible in developing solutions that meet site-specific requirements. While recognising that

companies, including CSG operators, must meet legislative requirements, leading practice also expects them to go beyond the minimum.

### Environmental impact assessments

Environmental impact assessment processes in jurisdictions will vary depending on the nature, extent and location of a particular CSG project. All impact assessment processes should contain, at a minimum, an environmental assessment that considers the impacts of all drilling and associated activities, chemical use (including handling, transport, storage and disposal), groundwater and the health and safety of personnel and the community.

In Queensland, for example, before a mining or petroleum/gas project can be given an environmental authority, the *Environmental Protection Act 1997 (Qld)* requires that the project's likely environmental impacts be assessed and measures proposed to avoid or minimise any adverse impacts.

The opportunity for public consultation and participation as part of the environmental assessment process is a common requirement of environmental legislation and is undertaken where appropriate. For example, in Victoria, an EIS usually contains:

- a description of the proposed development
- an outline of public and stakeholder consultation undertaken during investigations and the issues raised;
- a description of the existing environment that may be affected
- predictions of significant environmental effects of the proposal and relevant alternatives
- proposed measures to avoid, minimise or manage adverse environmental effects
- a proposed program for monitoring and managing environmental effects during project implementation

While regulators have an obligation to review and approve environmental impact assessments and, where appropriate, apply terms and conditions that are appropriate to the management of the impacts identified in the extraction of CSG, industry also has a significant role in ensuring environmental impact assessments are sufficiently comprehensive to mitigate any potential risks associated with the project.

The environmental impact assessment can also be undertaken bilaterally with the Commonwealth and, where legislation allows, can also incorporate community and stakeholder views in the assessment and decision-making process. A key function of bilateral agreements is to reduce duplication of environmental assessment and regulation between the Commonwealth and the states and territories. Bilateral agreements allow the Commonwealth to 'accredit' particular state or territory assessment processes and, in some cases, state or territory approval decisions. In effect, bilateral agreements allow the Commonwealth to delegate to the states and territories the responsibility for conducting environmental assessments under the Commonwealth *Environment Protection and Biodiversity Conservation Act (EPBC Act)* and in certain circumstances, the responsibility for granting environmental approvals under the EPBC Act. Bilateral agreements may also deal with various other matters, such as management plans for World Heritage properties and cooperation on monitoring and enforcement.

To be accredited, a state or territory process will need to meet 'best practice' criteria. If a proposed project is covered by an assessment bilateral, then it is assessed under the accredited state or territory process. After assessment, the project still requires approval under the EPBC Act. If a project is covered by an approval bilateral, then it will be assessed and approved by the state or territory in accordance with an agreed management plan. No further approval is required under the EPBC Act (SEWPaC 2012a).

### Environmental management plans

Existing requirements for environmental management plans in jurisdictions provide for the management, control and monitoring of CSG activities that are appropriate for the nature and scale of the activity, outline the planned and potential interactions between the activity and its environmental receptors, demonstrate that environmental impacts and risks will be as low as reasonably practicable and provide appropriate environmental performance standards and measurement criteria.

Environmental legislation provides a robust mechanism to manage CSG projects at the state and federal level. The three CS-LNG projects currently under construction in Queensland have approximately 1000 state conditions and 300 federal conditions. These conditions seek to ensure the protection of the environment, including groundwater resources, against every aspect of each project, from well fields to the LNG facility and access to LNG carriers. The conditions include ongoing monitoring of projects and allow for continual assessment of the impact to the environment, for example against thresholds for groundwater level drawdown.

### Hierarchy of risk control

Jurisdictions commonly stipulate requirements for risk assessments to be undertaken. These seek to assess and manage risks to the environment, the safety of personnel and the community through environmental management plans and work health and safety legislation.

As part of the hazard assessment process, jurisdictions require CSG operators to ensure each environmental, health and safety hazard associated with the life cycle of a petroleum operation is eliminated, or, if it is not practicable to eliminate the hazard, to ensure that the risk associated with the hazard is minimised so far as is practicable and according to good oilfield practice. At a minimum, operators are required to assess and manage the risks associated with site access, preparation, well integrity, groundwater protection and safety of personnel and the community.

In some jurisdictions, guidelines require specific actions to be taken in regard to risk management of CSG activities. Specifically, petroleum operations in Victoria require the development of a comprehensive operations plan that addresses environmental, health and safety risks, enabling them to be managed in an integrated manner. In relation to well development, Queensland stipulates that CSG operators are required to undertake a risk assessment to identify the risks that may occur during well construction, operation and abandonment within the state's Code of Practice for Constructing and Abandoning Coal Seam Gas Wells.

For water management and monitoring, Queensland's Environment and Heritage Protection guideline *Preparing an Environmental Management Plan for CSG Activities* stipulates the preparation of a CSG water management plan, which requires CSG operators to undertake baseline monitoring of existing groundwater users and spring surveys and develop an



underground water impact report including a water monitoring strategy and spring impact management strategy. New South Wales has similar requirements as part of its Aquifer Interference Policy, which requires applicants to address potential water impacts (including aquifer compaction, deterioration of ambient water quality and significant soil erosion).

In all jurisdictions, the management of risks associated with chemicals used in CSG activities is stipulated in safety management plan requirements through both the environmental management plan requirements and health and safety legislation.

#### Verification of system elements

While not always expressly required in jurisdictions' legislation, conditions may be imposed on CSG projects which require the certification of CSG processes. In many cases, approvals are not granted by regulators until specific risk assessments are undertaken and submitted to the relevant authority.

By way of example, in Queensland a hydraulic fracturing risk assessment is required which outlines key elements of the program. A completion notice must also be lodged within ten days of finishing hydraulic fracturing activities. Similar requirements apply in New South Wales under the Code of Practice for Coal Seam Gas: Fracture Stimulation Activities (NSW DTI, 2012b)

South Australia's activity notification must provide detailed activity information, including an assessment that indicates that a facility, equipment or management system used in drilling, production or pipeline activity is fit for purpose. The licensee must ensure the information contained in the report is accurate. Similarly, in the Northern Territory, under the Schedule of Requirements, the construction, alteration or reconstruction of drilling and production equipment must not be undertaken without approval (NT DME, 2012). Where required, a verifying body may be required to verify the design, construction and installation of petroleum facilities.

## CHAPTER 3: WELL INTEGRITY

### KEY POINTS

- ❖ Well integrity is a fundamental concept applied throughout the petroleum industry in Australia and overseas to describe the application of technical, operational and organisational solutions to the construction, operation and decommissioning of CSG wells.
- ❖ Australia's legislative approach to well integrity has been developed from extensive experience in onshore and offshore oil and gas extraction and is based on international best practice for well design, construction, maintenance and rehabilitation. Well integrity across all industries and for all purposes is fundamental to the protection of Australia's groundwater assets.
- ❖ Leading practice in well integrity is a key strategy for managing impacts associated with CSG activities as it ensures strong governance and rigorous practices and standards in well development to prevent the uncontrolled release of fluids, solids and gases into the environment over the full life cycle of the well.

### KEY FINDING

- 3.1 In Australia, comprehensive standards, codes and legislation regulate the design, material, construction, maintenance, decommissioning and rehabilitation of CSG wells. Successful application of leading practice in well integrity depends not only on this comprehensive regulatory regime, but also on consistent compliance by industry and thorough and effective enforcement by qualified regulators.



### WHAT IS WELL INTEGRITY?

Well integrity is a term used to describe the application of technical, operational and organisational solutions to the construction, operation and decommissioning of CSG wells so that the uncontrolled release of fluids, solids and gases into the subsurface or surface environment can be prevented over the full life cycle of the well.

Well integrity is the primary risk management tool for the protection of aquifers, as well as the environment and community more broadly.

The design of CSG wells draws on experience, established techniques, equipment and materials used in the petroleum industry throughout the world. The application of this expertise ensures that the materials used in CSG well construction are fit for purpose and capable of providing the required well integrity.

Over its vertical length, a CSG well will pass through different geological formations. An example of this may be a rock formation that separates two different aquifers. To prevent cross-flow of gas or water between different geological layers, CSG companies apply a strategy of zonal isolation, with a system of steel casing and cement.

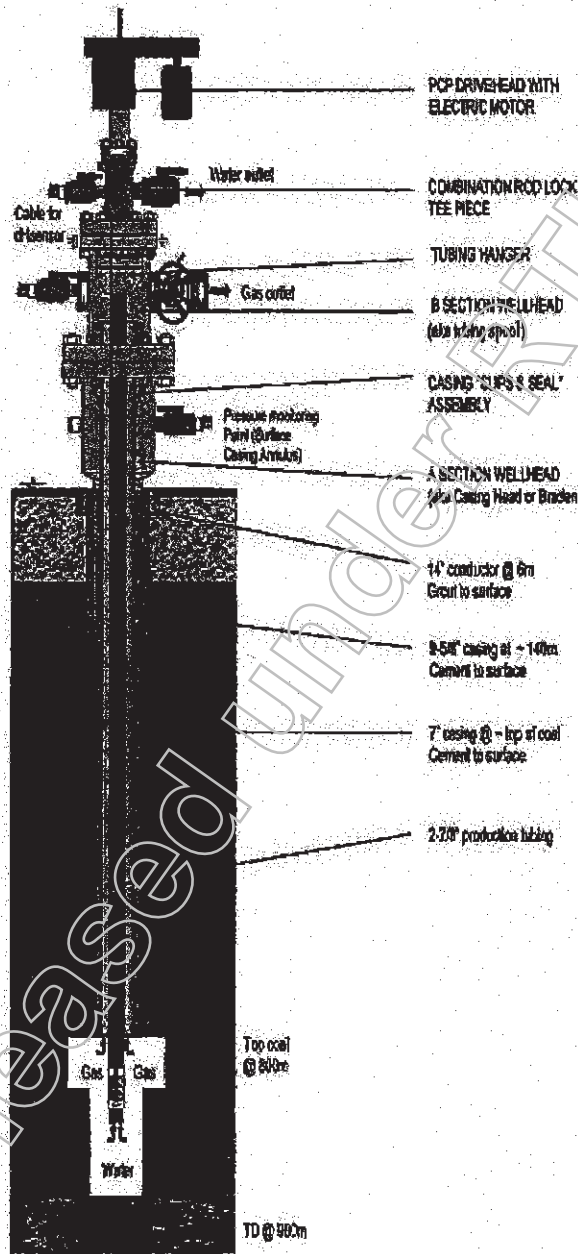
The depth and diameter of a well will vary according to the position of the coal seam and the structure of underground rock formations and aquifers. The diameter of the well bore at the surface is generally between 10 and 30 centimetres. Each time the well passes through a significant geological formation, a corrosion-resistant steel casing (which is smaller in diameter than the well bore) is inserted in the well. Cement is then pumped under pressure between the wall of the well bore and the outside of the casing.

After the cement is dry, the integrity of the casing and cement is confirmed by a pressure test. Additional remedial work is conducted until the integrity is confirmed. The well then continues to either the coal seam or the next significant geological formation, where the 'zonal isolation' technique may be repeated. This technique results in a 'stringer' arrangement, with the steel casing and cement lining decreasing in diameter each time it passes through a significant geological formation. This isolation technique has been standard practice in the oil and gas industry for decades.

Figure 3.1 shows a typical CSG well.

Figure 3.1: Schematic of a typical CSG well

NOTE that A section would normally be set below GL. Shown above GL for illustration purposes only.



Source: NSW Government (2012).

## Well integrity in CSG development

Well integrity during construction, operation and abandonment is fundamental, not only to ensure sustainable gas production and a safe work place, but also the effective protection of the environment. It has particular significance to the protection of ground and surface water resources.

The impacts on the environment from CSG wells and their associated facilities can be minimised through compliance with high design standards, robust safety obligations, application of documented industry standards and experience, and strong governance programs.

The application of leading practice to well integrity encompasses the entire range of activities for CSG operations, including well design and location; drilling and well completion (including casing and cementing); hydraulic fracturing; surface operations; collection and distribution of gas and produced water; well decommissioning and sealing; and emergency response.

CSG wells must be designed to ensure the environmentally sound and safe production of gas. Well design and construction must ensure that no leaks occur through or between any casing strings (each length of casing – conductor, surface, intermediate, and production). This includes preventing the occurrence of over-pressurisation or blowouts at the surface. The gas and fluids produced from the well must travel directly from the producing zone to the surface inside the well casing, without contaminating groundwater resources.

Most significant to the maintenance of well integrity is the effectiveness of the steel casing and cementing to prevent the creation of migratory paths for water and other contaminants. Well integrity also ensures the casing isolation of the targeted CSG layers from other geological layers and associated aquifers. This protects aquifers by ensuring their separation from poor quality water in the coal seams. It also ensures that drilling fluids, chemicals and other contaminants that might be introduced or mobilised over the life of the CSG operation are confined, including during hydraulic fracturing operations where these are carried out.

In Australia, CSG wells are regulated through comprehensive standards, codes and legislation, which ensure the integrity of their design, material, construction, maintenance and rehabilitation. Both the company and regulator have auditing and compliance requirements to ensure the effective implementation of the regulations. The detailed monitoring undertaken during the life of the well underpins the provision of evidence-based land use decision-making and serves to inform open and constructive debate and analysis of multiple land use options.

In summary, safe and environmentally sound CSG wells are designed to:

- prevent any interconnection between hydrocarbon bearing formations and aquifers
- ensure that gas is contained within the well and associated pipe work and equipment without leakage
- ensure isolation between different aquifers is achieved
- prevent dispersion of substances that may cause environmental harm.

When a CSG well is no longer required, it is abandoned or decommissioned. Decommissioning involves sealing the well to prevent the intermixing of fluids and pressures



between aquifers, the escape of fluids to the surface and injury and/or harm to the environment and people.

Well integrity is not compromised if the construction or decommissioning of CSG wells is carried out according to appropriate standards and procedures. If this is not the case, however, the potential impacts that could arise from poor well integrity are outlined in Table 3.1.

Table 3.1: Key potential impacts of poor well integrity

1	<p>Poor well integrity caused by poor cementing, failed well casings or other poor well construction and operation and decommissioning practices (e.g. standards applied do not account for the life span of the materials used in construction)</p> <p>(Note: While poor well integrity is an issue, conversely leading practice well integrity is a key impact management measure.)</p>	<ul style="list-style-type: none"> <li>Hydraulic connectivity between otherwise isolated aquifers with different water qualities causing contamination and potentially unwanted alterations to water flows</li> <li>Contamination of water at the surface and subsurface by drilling and hydraulic fracturing fluids and geogenic (naturally occurring) compounds</li> <li>Migration of gas into surrounding aquifers, wells and water bores, and the surface</li> </ul>
2	<p>Over-pressurisation of the well head due to poor operational practices or through encountering over-pressured formations in the subsurface</p>	<ul style="list-style-type: none"> <li>A blowout at the surface or in the subsurface may cause harm to the drilling crew as well as contamination by allowing the escape of drilling and hydraulic fracturing fluids, geogenics and gas into groundwater and to water courses and land at the surface</li> </ul>

### Leading practices

(Relates to leading practices 1, 2, 3, 4, 5, 6, 7 and 12)

The leading practices discussed in Chapter 2 apply to issues of well integrity. In addition to leading practice 12, discussed in Chapter 5, leading practices that will mitigate issues associated with well integrity are discussed in detail below.

#### 5: Apply strong governance, robust safety practices and high design, construction, operation, maintenance and decommissioning standards for well development

Adopting this practice will result in long-term well integrity and environmentally sound, safe production of hydrocarbons by containing them inside the well. This will protect groundwater resources, and isolate the methane-producing CSG formations from other formations.

Good oilfield practice is a concept that encompasses all those things that are generally accepted as prudent and safe in carrying on petroleum exploration or petroleum recovery operations. There are well documented industry standards, codes of practice, procedures, technical reports and industry experience that should be considered in the design, construction, operation, maintenance and decommissioning of CSG wells and associated facilities.

An example of this is the American Petroleum Institute's guidance document; *Hydraulic Fracturing Operations – Well Construction and Integrity Guidelines* (API 2009), which provides recommended practices for well construction and integrity for wells that will be hydraulically fractured. It stipulates that well design and construction must ensure that no leaks occur through or between any casing strings. The fluids produced from the well (oil, water, and gas) must travel directly from the producing zone to the surface inside the well conduit. The design basis for well construction emphasises barrier performance and zonal isolation using the fundamentals of wellbore preparation, mud removal, casing running, and cement placement to provide barriers that prevent fluid migration. The selection of the materials for cementing and casing is important, but is secondary to the process of cement placement. The performance of the barrier system to protect groundwater and isolate the hydrocarbon bearing zones is of utmost importance.

The American Petroleum Institute also provides guidelines for drilling and completion, casing, cement selection and practices, well logging and testing and hydraulic fracturing.

Ongoing monitoring of well conditions throughout the life of the well must also be undertaken to ensure integrity of the well and well equipment. Monitoring of the mechanical integrity and annulus pressure should be undertaken on a regular basis and in the event of potential casing disturbance. An annual report must be submitted to the regulator and include, but not be limited to, pressure testing, visual inspections and details of workovers.

Decommissioning and well abandonment must ensure the environmentally sound and safe isolation of the well, protection of groundwater resources, isolation of the productive formations from other formations, and the proper removal of surface equipment.

#### **6: Require independent supervision of well construction**

An independent suitably qualified drilling supervisor, that is, one who is independent from the drilling operator, an employee of the project proponent or from a third party organisation, should supervise all drilling activities. This serves to ensure CSG wells are constructed according to the well development plan, with particular attention paid to the integrity of the cement. If situations arise where the integrity of the wells could be compromised, it is the responsibility of the drilling supervisor to ensure that they are managed appropriately to ensure the risks are as low as reasonable practicable.

The drilling supervisor should supervise key activities, such as:

- the placement of casing centralisers
- the monitoring of the return of cement during the cementing process to ensure even return through the annulus
- the testing of the return cement for curing properties and the maintaining of a cement log (including samples)
- wire line logging (cement bond logging and the variable density log)
- the installation of annulus pressure monitoring valves and the monitoring of annulus pressure, particularly during the hydraulic fracturing process
- the submission of the post completion report to the regulator.

Regulators should undertake random site inspections to ensure compliance by CSG operators. These may include the use of independent auditors.



**7: Ensure the provision and installation of blowout preventers informed by a risk assessment**

Properly maintained blowout preventers (BOPs) stop the uncontrolled release of drilling fluids and hydrocarbons from the well in the event that a pressurised zone is encountered, and are important for reducing work health and safety risks for the well crew.

Blowouts can occur if drilling encounters an over-pressurised and highly permeable formation. Blowouts present a major safety hazard to workers and can result in escapes of fluid into nearby surface water. A BOP effectively prevents these uncontrolled discharges of fluids from the well into the environment.

A BOP is placed at the top of a well during drilling to automatically shut down the well and contain fluid within the wellbore should there be any sudden or uncontrolled escape of fluids. During production, the BOP is replaced with a series of valves to connect the well to the gas export pipeline. The BOP is the final resort should a blowout occur. When the BOP closes in response to a blowout, any vulnerability in casing and cement could cause a failure in well integrity, allowing fluid to escape into surrounding subsurface formations (an underground blowout). This is a further reason why proper design to maintain subsurface well integrity is vital.

The installation of a BOP is not strictly necessary in all geological situations. A risk assessment can be undertaken on each CSG well, or group of wells, to assess the need for the installation of a BOP. In practice, work health and safety or petroleum legislation may stipulate the installation of a BOP in all instances. Irrespective of the legislative requirements, most operators would install a BOP as standard practice for safety reasons. At a minimum, every CSG well should be designed to include the provision of a BOP in case it is required.

### Analysis

Much of the community's concern associated with the development of CSG is centred on the impacts that CSG development may have on Australia's water resources. Well integrity is the cornerstone which ensures that the potential for groundwater contamination and depletion in particular is effectively managed and mitigated.

### Strong governance and standards in well development

The term integrity is used in the sense of ensuring a well's construction is sound, unimpaired and complete. Australia's legislative approach to well integrity has been developed from extensive experience in onshore and offshore oil and gas extraction and is based on international best practice for well design, construction, maintenance and rehabilitation. Well integrity across all industries and for all purposes is fundamental in the protection of Australia's groundwater assets.

The sound management and construction of wells, along with effective well monitoring, will ensure that:

- the environment, including groundwater resources, is protected
- risks to the public and workers are as low as reasonably practicable
- the operator meets Australian regulatory requirements and international standards for well design, construction, monitoring and decommissioning.

In all Australian jurisdictions, CSG wells and their associated facilities are made low risk through compliance with high design standards, robust safety obligations, documented industry standards and experience, and through strong governance programs.

Well integrity in all jurisdictions is managed through petroleum and gas regulation, which stipulates broad requirements for petroleum wells from construction to decommissioning, as well as work health and safety requirements. This legislation also references international standards for 'good oilfield practice' or 'good industry practice'. This is a generic concept, with many jurisdictions defining good oilfield practice in legislation. For example, the *Petroleum and Geothermal Energy Resources Act 1967 (WA)* defines the term to mean 'all those things that are generally accepted as good and safe in the carrying on of exploration for petroleum, or in the operations for the recovery of petroleum, as the case may be'.

The design, construction and choice of materials are the fundamental pillars for well integrity over the life of the well. In all instances of well design, onshore or offshore, conventional or unconventional, Australian regulators require approved work plans that outline all aspects of design, construction and management before operators can commence construction.

The Queensland and NSW governments have developed codes of practice that stipulate CSG-specific requirements for well integrity (Box 3.1).

Box 3.1: Well integrity codes of practice

The Code of Practice for Construction and Abandonment of CSG Wells in Queensland has been developed to ensure that all CSG wells are constructed and abandoned to a minimum acceptable standard resulting in long term well integrity, containment of gas and the protection of groundwater resources.

The Queensland code is designed to complement the CSG operator's internal risk assessment processes and operating procedures. It outlines the recommended process for managing the construction of CSG wells and their eventual abandonment throughout Queensland. This ensures that these activities are completed in a consistent manner and that the processes are effectively monitored to ensure that:

- the environment and, in particular, underground sources of water are protected
- risk to the public and CSG workers is managed to a level as low as reasonably practicable
- applicable Australian and international standards and regulatory requirements, as well as the operator's internal requirements, are understood and implemented
- the life of a CSG well is managed effectively through appropriate design and construction techniques and ongoing monitoring

The NSW Code of Practice for Coal Seam Gas – Well Integrity provides a practical guide for CSG holders to ensure that well operations comply with NSW legislation and are carried out safely without risk to health and without detriment to the environment. These guidelines are an essential minimum set of requirements to ensure that:

- the health and safety of workers, landholders and other persons is not put at risk arising from well operations, so far as is reasonably practicable
- risks to the environment (surface water and groundwater, air, vegetation, fauna) are identified, eliminated where possible or minimised through appropriate management practices
- water used in well operations is properly sourced



- waste products are safely and appropriately managed
- landholders, local councils and relevant authorities are notified of specified well operations in a timely manner
- regulatory requirements are understood and implemented.

Both codes mandate that the design basis for CSG wells must incorporate the following:

- consideration of casing setting depths taking into account aquifer and production zone locations, and the requirements for well control
- provision for installation of blowout preventers, use of appropriate casing weight and grade, and casing running procedures
- use of appropriate well design and construction materials
- use of appropriate casing centralisation
- use of engineered cement slurry and effective cement placement techniques
- design to ensure all fluids produced from the well travel directly from the production zone to the surface without groundwater contamination

The codes also mandate monitoring and maintenance requirements. They require that throughout the life of a producing well, well conditions must be monitored to ensure ongoing integrity of the well and well equipment. Monitoring mechanisms and frequencies are determined by a comprehensive risk assessment. Monitoring includes mechanical integrity and pressure monitoring and evidence of corrosion to be used to determine the mechanical integrity of casing and other well equipment when the well is producing and during well treatments or well intervention/workover operations.

Reporting requirements are specified under the relevant petroleum legislation for each jurisdiction. A number of well reporting requirements are stipulated, including daily drilling reports, well completion reports and well abandonment reports. It is the responsibility of the CSG operator to ensure that these reporting requirements are fulfilled. In addition, cementing reports, materials reports, cement pump charts, pressure records, and logging reports are other examples of reports which must be completed and submitted to the regulator with well completion reports.

#### Box 3.2: Examples of mandatory well abandonment requirements

The NSW and Queensland codes specify mandatory well abandonment requirements. In Queensland, for example:

##### 1. For production wells:

- A cement plug must be set inside the casing as close as practical above the uppermost hydrocarbon production zone. This plug must be pressure tested to 500 psi (3.5 MPa) above the estimated (or previously recorded) leak off pressure. Where this plug is not cemented to surface, the plug must also be tagged with a minimum 2000 lb (1000 kg) set down weight.

##### 2. For exploration wells:

- A cement plug must be set across the open hole section and inside the lowermost casing shoe. This plug must be pressure tested to 500 psi (3.5 MPa) above the estimated (or previously recorded) leak off pressure. Where this plug is not cemented to surface, the plug must also be tagged with a minimum 2000 lb (1000 kg) set down weight.



3. For all wells:
- There must be a minimum of two adjacent cement barriers across all formations above the uppermost hydrocarbon production zone.
  - The innermost casing string must be filled to surface with cement.
  - The blowout preventers and/or wellhead must not be removed until the cement plug across the surface casing shoe or plug across the uppermost formation has been physically tagged for correct location and pressure tested.
  - Wellheads must be removed and casing must be cut greater than 1.5 m below surface. A wellhead marker plate must be installed as per legislative requirements.
  - Complete and accurate records of the entire abandonment procedure must be kept, with these records submitted as part of the legislative reporting requirements for the abandonment of CSG wells.

Codes of practice provide greater awareness of the regulatory requirements for CSG operators, and allow the community to understand the strings of requirements that apply. They provide an easily interpreted guide which outlines the application of the legislation as it relates to the various aspects of the CSG operation. Codes of practice also consolidate the regulatory requirements in a single document rather than requiring the reader to navigate multiple acts and regulations.

Independent supervision of well construction and blowout preventers

#### *Supervision of well construction*

The leading practice is to require an independent drilling supervisor to ensure the well is constructed appropriately forms a part of good oilfield practice. While not stipulated in regulations, companies generally require an employee on site to oversee the work of the drilling contractor as a matter of course. Typically, an employee of the project operator, who is independent of the drilling company, will supervise the operations to ensure that drilling, cementing and well completion contractors operate in accordance with good oilfield practice.

Wells are considered to be an asset of the exploration or production licence holder rather than the drilling company, meaning the licence holder has ultimate responsibility for ensuring well integrity. Petroleum and gas inspectors may also undertake random site inspections to monitor compliance with mandated safety management provisions.

#### *Blow out preventers*

The provision of blowout preventers is a further example of good oilfield practice, and is considered standard industry practice due to the risks associated with blowouts.

In addition, all jurisdictions have environmental legislation, which requires CSG operators to carry out a risk assessment to identify the risks that may occur during well construction, operation and abandonment. Risks to be managed can include site access and preparation, well integrity, groundwater protection and safety of personnel and the community. Further information on the obligations established in environmental legislation is outlined in Chapter 2.

## CHAPTER 4: WATER MANAGEMENT AND MONITORING

### KEY POINTS

- ❖ The impact of CSG developments on groundwater resources is a significant source of community concern. The issues that arise can be broadly categorised as depletion and contamination of water resources, each of which could affect existing groundwater users, inter-aquifer connectivity, groundwater to surface water interactions and groundwater-dependent ecosystems.
- ❖ Baseline and ongoing monitoring is critical to informing the development of water impact management strategies to ensure the effect on the level and quality of water resources is kept within acceptable limits.
- ❖ Maximising the productive long-term use of water resources has a significant role to play in alleviating the impact of water extraction by the CSG industry on other water users and the environment.
- ❖ Applying leading practice in water management and monitoring ensures that governments take steps to improve evidence-based decision-making and increases certainty for CSG operators to assist their compliance with their legislative obligations. It also improves transparency and communication with the community on what governments are doing to manage potential CSG water impacts.

### KEY FINDINGS

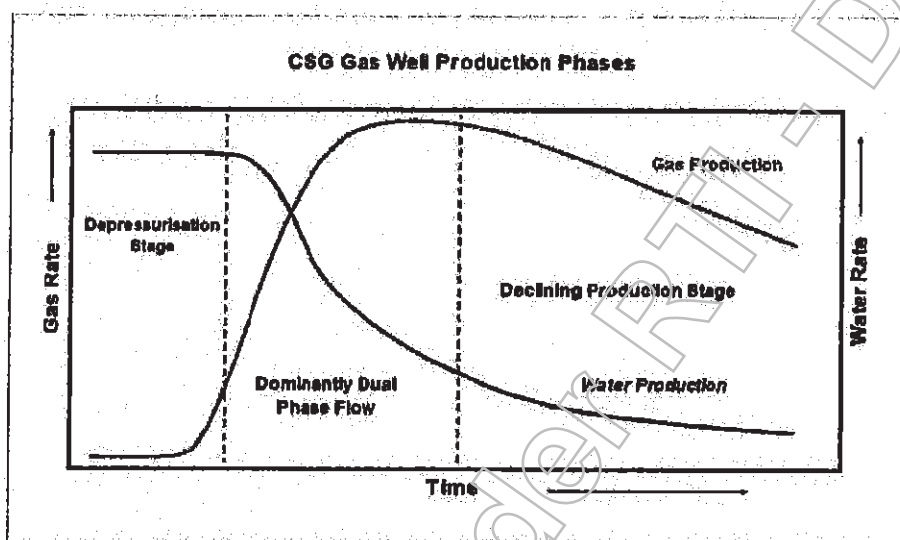
- 4.1 The Commonwealth, with advice from relevant jurisdictions, should continue to develop and implement the research work program identified by the Independent Expert Scientific Committee. This will help to ensure that regulatory decisions involving CSG projects that may have a significant impact on water resources continue to be based on the best available scientific advice.
- 4.2 No single jurisdiction employs all aspects of leading practice relating to the accountability and management of co-produced water. In particular, there are differences in approach to the licensing and management of co-produced water. This is a reflection of the differences in implementation of the National Water Initiative. While these approaches derive from different regulatory rationales, they have the same strategic intent of achieving balanced and consistent outcomes, including protection of the environment and the rights of other water users.
- 4.3 The use of reinjection as a means of disposal of waste water and brine into suitable underground systems is a method that has not been widely considered in Australia. Governments should evaluate international leading practices for application in Australia.
- 4.4 To facilitate further moves towards a nationally consistent approach to water management, relevant COAG standing councils, including the Standing Council on Environment and Water, should consider further reforms in these areas as a matter of priority.



## Water in CSG development

Coal seam gas is held in coal seams by water pressure. As water is pumped from the coal seams (a process called depressurisation), the pressure is lowered and the gas is released. As water pressure is reduced, gas flow increases and water flow rates decrease from each well, typically to around a quarter to a third of the initial flow over a period of a few months to a few years, depending on the hydrogeological conditions of the seam (NWC, 2011; QWC, 2012b). The water produced in this fashion is termed co-produced (or associated) water.

Figure 4.1: Typical gas and water flow in CSG production



Source: QWC, 2012b

The volume of co-produced water extracted from each well can vary considerably between wells and regions. For example, over the life of a well, the typical water production in the Surat Basin has been assessed at 0.4 ML/day to 0.8 ML/day before decreasing to 0.1 ML/day, compared with the Camden field in the Sydney Basin, which produced 0.20 ML/day before decreasing to 0.02 ML/day (RPS, 2011). The quality of co-produced water also varies significantly, from near potable to brackish (moderately saline). Typically, co-produced water is of a quality that significantly restricts its potential use or disposal unless treated.

The impact of CSG development on groundwater resources is a significant source of community concern. The issues that arise can be broadly categorised as depletion and contamination of water resources, each of which could affect existing groundwater users; inter-aquifer connectivity; groundwater to surface water interactions; and groundwater-dependent ecosystems.

The key issues for water management in CSG activities are associated with:

- potential impacts of the extraction of large volumes of co-produced water in the short and long term
- contamination of surrounding environment, surface water and groundwater
- management (that is, treatment and disposal) of co-produced water and post-treatment waste
- beneficial use of co-produced water (including reinjection).

The potential impacts of the extraction of large volumes of co-produced water require management in both the short and long term. Depressurisation and lowering of the water table will occur where large volumes of groundwater are extracted as a consequence of CSG production in the coal seams and in those localities where there is close hydraulic connectivity between the coal seams and adjacent aquifers. The extent of impacts will vary from site to site depending on the degree of connection between aquifers, the hydraulic properties of the coal seam, the volume of co-produced water, and any remedial measures such as reinjection or substitution (beneficial use of co-produced water which substitutes for water that would otherwise have been extracted from aquifers).

In addition to lowering groundwater levels, the large-scale depressurisation of the coal seams has the potential to release gas into water bores that have been drilled through the coal seams. There are minor coal seams embedded through most of the formations in the Surat Basin and a number of water bores intersect these coal seams. When the target coal seam is depressurised, the surrounding aquifers may also be depressurised to some extent where there is close hydraulic connectivity, and in some instances gas can be released (desorbed) from these minor coal seams and be detected in private water bores. However, in many cases the water bores tend to be relatively shallow (that is, less than 100 metres) compared to CSG wells, which will limit the potential for gas migration into water bores.

Methane has been found to occur naturally in many Australian water bores including prior to any development by the CSG industry. The situation is made more complex by thousands of existing water bores and numerous exploration wells from previous activities (legacy wells) throughout areas that could be subject to CSG production. These existing wells and bores, particularly if they are of questionable integrity, may already be facilitating methane migration into aquifers. The CSG industry is acting to address this problem by properly decommissioning legacy wells and water bores from prior land use activities.

There are concerns associated with any sustained fluid injection into a subsurface aquifer with respect to contamination and the potential for induced seismicity (NRC, 2012). Injecting fluids into the subsurface has the potential to increase pore pressure. This could cause faults and fractures to fail more easily, thus inducing seismic activity.

CSG water must be treated to make it suitable for use or discharge. Treatment processes often involve some form of desalination and may produce a significant waste stream of concentrated saline water, also known as brine. Management of brine requires a rigorous risk assessment to ensure the safe disposal of this waste product.

The potential issues associated with water management in CSG operations are outlined in Table .

Table 4.1: Key potential issues associated with water management

No.	Issue	Impact
3	Depressurisation of coal seams to enable the production of CSG	<ul style="list-style-type: none"> <li>Reduced aquifer levels and pressures with volume and quality implications for other users, groundwater-dependent ecosystems and unwanted surface water interactions with groundwater over the short and long term (Intergenerational equity)</li> <li>Cumulative Impacts from multiple projects and local versus regional impacts</li> <li>Altered hydraulic gradients produce mixing and cross contamination between aquifers and surface waters with different quality characteristics</li> <li>Migration of gas into surrounding aquifers, wells and other bores and the surface</li> <li>Reduced water saturation of subsurface layers enables compression and subsidence at the surface</li> </ul>
4	Poor or inappropriately decommissioned wells and bores, abandoned wells and bores; legacy wells and bores (including from exploration and activity in other sectors)	<ul style="list-style-type: none"> <li>Localised hydraulic connectivity causing contamination of aquifers and surface waters by chemical geogenics and the migration of gas. Depressurisation of coal seams may accelerate these effects</li> </ul>
5	Poor management and handling of co-produced water. This includes the extraction, storage, transport and treatment stages; impacts from leaks (i.e. of storage dams), dam wall collapse, salt crystallisation and seepage and discharge, as well as hazardous events such as bushfires and floods	<ul style="list-style-type: none"> <li>Contamination of the surrounding environment, including surface water and land, and shallow groundwater</li> <li>Venting of gas and other volatile chemicals to the atmosphere in recovery of gas and co-produced water</li> <li>Management of intentional discharges of coproduced CSG water into the environment</li> </ul>
6	Inappropriate use and disposal of co-produced water, including: use of untreated or poorly treated water; inappropriate quality in end-use applications (e.g. dust suppression, irrigation, crop and stock watering); and failure of monitoring and analysis procedures	<ul style="list-style-type: none"> <li>Contamination of the surrounding environment, including surface and shallow groundwater and land (e.g. increased salinity, water logging of soils)</li> <li>Undetected contamination of the surrounding environment, including surface and shallow groundwater and land</li> </ul>
7	Reinjection of co-produced water. Note: While the reinjection of co-produced water is an issue, it is also an important leading practice for recycling co-produced water for beneficial use	<ul style="list-style-type: none"> <li>Potential for reinjection to cause deleterious changes in background water chemistry which may lead to changes in the beneficial use category of the water resource</li> <li>Potential for seismic events of sufficient magnitude to cause damage at the surface</li> </ul>
8	Improper storage, transport and disposal of wastes including permeate, brine, salt and other contaminants, including through accidents, spills and hazardous events (e.g. floods)	<ul style="list-style-type: none"> <li>Contamination of the surrounding environment, including surface and shallow groundwater and land</li> </ul>



## Leading practices

(Relates to leading practices 1, 2, 3, 4, 5, 8, 9, 10, 11 and 12)

In addition to the overarching leading practices that apply to all elements of this Framework, four further leading practices will contribute to the mitigation of impacts associated with water extraction. Leading practice 12 in Chapter 5 also applies to this section.

### **8: Require the implementation of baseline and ongoing monitoring for all vulnerable water resources**

Undertaking baseline assessments and ongoing monitoring of all vulnerable water resources relating to the project will allow the CSG operator to obtain key information prior to commencement, and throughout the life, of the CSG operation. This includes an assessment of existing water bores, surface waters and waterways, groundwater systems, springs and other potential groundwater-dependent ecosystems. The data obtained provides information about the level and quality of water that may be affected by CSG activity, including the depressurisation of coal seams.

Initial and ongoing monitoring can inform the development of impact management strategies to ensure the effect on the level and quality of water resources is kept within acceptable limits as determined by the regulator. A comprehensive monitoring program will also assist in the detection and remediation of legacy wells from previous water uses located on tenements held by CSG companies.

The baseline assessment gives a reference point to the background level of mineral salts and other substances present in the aquifers and may give an indication of any existing interconnectivity between aquifers and other water sources, including with the gas-bearing coal seams (which may themselves be locally important water sources).

An ongoing program of monitoring of these sites is then required throughout the CSG operation's life cycle to detect changes in quality and levels of water, gas flow and coal seam permeability. Regular monitoring of bores during drilling operations will detect any potential contamination, including gases, from drilling fluids. The presence of contaminants should be immediately reported to the relevant government agency. Early identification of contaminants will enable the operator to shut down the drilling process, assess the risk and redesign the process (if required), in consultation with regulators and environmental protection agencies, to avoid further contamination. In the event of widespread evidence of gas in adjacent groundwater, the regulator may consider the future viability of operations. Unexpected changes in water level, or changes beyond certain thresholds, may trigger a similar process.

### **9: Manage cumulative impacts on water through regional-scale assessments**

An assessment of the cumulative impacts of multiple CSG projects can determine and analyse potential impacts on water resources extending across large areas. Regional-scale numerical groundwater models, developed in accordance with the Australian Groundwater Modelling Guidelines (NWC, 2012b), can be used as both a predictive and monitoring tool to assess potential impacts on water resources. As CSG production proceeds, deviation from the model may occur. The accuracy of the model may therefore change throughout the life of the development. Modelling audits should be undertaken on a regular basis (every two to three years) to assess the effectiveness of the model used.

**10: Ensure co-produced water volumes are accounted for and managed**

The overall objective of leading practices for water is to ensure the resource is managed on a sustainable basis for the short and long term. It should provide efficient and transparent allocation of water to meet community needs and provide for economic development in a manner that protects natural ecosystems and other resources from degradation. Part of meeting this objective requires co-produced water from CSG to be properly accounted for in order to manage the resource and potential impacts on other users and the environment.

The application of leading practice water accounting allows the CSG operator, regulators and other relevant sectors to know the volume of co-produced water to be managed, where it is located, where it is from, and how it is to be used or disposed of, which in turn informs water resource planning.

Leading practices in water accounting should contain the following elements:

- Assess and account for co-produced water based on sound science (that is, through a numerical groundwater model or water balance approach), to inform water resource planning processes
- monitoring and assessment of the impacts of CSG co-produced water against set thresholds for groundwater level draw-downs in springs and water bores
- compensation, including make-good arrangements, for existing surface water and groundwater users and strategies to prevent or mitigate the impacts on the environment
- shared responsibility between regulators and industry to protect the rights of existing and future users of the water resources in terms of quantity and quality
- an assessment of the potential impacts prior to approval to extract co-produced water
- measurement and management of adverse impacts of co-produced water throughout and after the CSG operation in an adaptive management framework.

In order to develop a numerical groundwater model, it is necessary to develop a simplified conceptualisation of the hydrogeological environment. Model predictions will differ from the real world to some extent and observed impacts may be greater or less than predicted. Accordingly, ongoing monitoring and adjustments to models are required to address differences between observations and predictions.

**11: Maximise the recycling of co-produced water for beneficial use, including managed aquifer recharge and virtual reinjection**

Maximising the productive long-term use of water resources has a significant role to play in alleviating the impact of water extraction by the CSG industry on other water users and the environment.

There are a range of options for the management or disposal of large volumes of co-produced water. Wherever possible, co-produced water from CSG projects should be recycled for beneficial use. Beneficial uses include reinjection into the same or different aquifers, discharge to surface waters, or direct provision to other water users. For example, in virtual reinjection processes, treated water can be provided to water users as a substitute for current aquifer extractions, thereby alleviating demand on the resource. The volume of co-produced water varies, which can pose difficulties for some beneficial uses that require security of supply, such as some farming enterprises.



When recycling is not feasible, co-produced water should be disposed of in accordance with the conditions of an approval issued by the relevant environmental authority.

If water reinjection is adopted by the project operator for either beneficial use or disposal, the evaluation and risk assessment of the reinjection program should include consideration of potential impacts.

## Analysis

Australia is a water-constrained country and governments at every level understand the vital importance of our groundwater and surface water resources. Water resources such as the Great Artesian Basin and the Murray–Darling Basin are of major importance to the eastern states, not only as a water source for human consumption, but also for agriculture and industry. The National Water Initiative provides a national blueprint for water reform and represents a shared commitment by governments to increase the efficiency of Australia's water use, leading to greater certainty for investment and productivity, for rural and urban communities, and for the environment (COAG, 2004a). With the emergence of the CSG industry, governments have implemented a number of further measures to improve the management and monitoring of Australia's water resources.

In 2011, the Commonwealth and state governments agreed to strengthen the science that underpins the decision making of the CSG and large coal-mining industries. A national partnership agreement between the Commonwealth and relevant states recognised the mutual interest in the long-term health, quality and viability of Australia's water resources (COAG, 2012). It also recognised the mutual interest in the sustainable development of the CSG and coal-mining industries, given their potential contribution to Australia's energy security and balance of international trade.

The agreement provided that the Commonwealth would establish an Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining (IESC). An interim IESC was established prior to the passage of legislation to formally establish the committee in October 2012. The primary role of the IESC is to provide advice to Commonwealth and state and territory regulators on those projects where there is likely to be a significant impact on water resources. The initiative is designed to allow the community to engage in a more mature, reasoned and knowledgeable debate on the future of CSG and large coal-mining development in Australia. The Commonwealth Government has now established the IESC to strengthen the decision making of CSG and large coal-mining development by ensuring that future decisions are informed by substantially improved science and independent expert advice.

CSG and large coal-mining developments must be developed in a way that maintains community confidence, especially in regard to the impact on water resources, including any impacts of associated salt production and salinity. To achieve this, environmental approvals and licensing decisions must be made on the basis of transparent, objective scientific evidence. The IESC will outline a new science-based strategic framework, which will provide certainty for regional communities about CSG and large coal-mining developments, jobs and investment – and do so in a way that minimises any adverse impacts on Australia's vital water resources.

The Commonwealth, with advice from relevant jurisdictions, should continue to develop and implement the IESC's research work program. This will help to ensure that decision making involving CSG projects that may have a significant impact on water resources continue to be based on the best available scientific advice.

## Baseline and ongoing monitoring

Existing requirements across all jurisdictions for environmental management plans or statements of environmental objectives provide a basis for the management, control and monitoring of water resources affected by CSG activities.

In addition, environmental regulators require CSG companies to establish groundwater monitoring networks to provide a baseline dataset prior to the commencement of CSG activities. This baseline data includes information about water bores, such as the level and quality of the water in the bore. Predictive models are required to be revised and recalibrated over time based on the data collected. These models are then used to predict and identify the impacts on environmental values and other users of the water resources.

By way of example of water management planning, under the *Environmental Protection Act 1994 (Qld)*, environment management plans submitted to the regulator by CSG operators in Queensland must include information on:

- the quantity of water the applicant reasonably expects will be generated in connection with carrying out each relevant CSG activity
- the flow rate at which the applicant reasonably expects the water will be generated
- the quality of the water and the changes in the water quality that the applicant reasonably expects will happen while each relevant CSG activity is carried out
- the proposed management of the water, including the use, treatment, storage or disposal of the water
- criteria against which the applicant will monitor and assess the effectiveness of the management of the water, including criteria for each of the following:
  - the quantity and quality of the water used, treated, stored or disposed of
  - protection of environmental values affected by each relevant CSG activity
  - the disposal of waste, including, for example, salt generated from the management of the water
  - the action that is proposed to be taken, if any of the criteria are not satisfied, to ensure the criteria will be able to be satisfied in the future.

With regard to baseline monitoring, CSG operators in Queensland are required under the *Water Act 2000 (Qld)* to undertake baseline monitoring of existing groundwater users, spring surveys and develop underground water impact reports, including water monitoring strategies and spring impact management strategies. Consideration of unexpected or extreme events, such as extreme weather, accidents, or similar, is also required as part of these management plans. In addition, operating licences contain requirements for ongoing monitoring, evaluation, and reporting on compliance. The Queensland Department of Environment and Heritage Protection has published guidelines to assist CSG operators in the preparation of baseline assessments (QLD DEHP, 2012a).

In New South Wales, regulatory arrangements and the Aquifer Interference Policy place similar requirements on CSG companies operating in that state (NSW DPI, 2012). If CSG production is proposed in jurisdictions other than Queensland and New South Wales in the future, governments in those jurisdictions will need to consider appropriate baseline monitoring requirements.

## Regional-scale water assessments

A number of initiatives have been commenced or completed to provide regional-scale water assessments to identify the potential local and regional impacts.

The *Water Act 2000* (Qld) allows the declaration of a cumulative management area if an area contains two or more petroleum tenures (including CSG tenures) where there may be cumulative impacts on groundwater resulting from extraction by tenure holders. Responsible entities must prepare, consult on and submit an underground water impact report. If this report relates to a tenure located outside a cumulative management area, the responsible entity will be the petroleum tenure holder, such as a CSG operator. If the report is being prepared for a cumulative management area, the Queensland Water Commission is the responsible entity.

An underground water impact report includes a comprehensive water monitoring program, projections of potential future water level impacts (including the immediately affected area which triggers requirements for bore assessments and certain make good obligations) and a spring impact management strategy. If a bore has been identified as being located in an immediately affected area, a bore assessment must be undertaken within 60 days of the report taking effect.

The Queensland Water Commission is assessing the cumulative impacts of CSG activities in the Surat and Bowen basins and will be producing an underground water impact report every three years, covering the total region deemed to be potentially affected by the cumulative effects of all CSG proponents on a single groundwater resource. The first such report for the Surat Cumulative Management Area was submitted for approval by the Queensland Water Commission in July 2012 (QWC 2012b) and approved with conditions relating to monitoring and prevention and mitigation of impacts on springs. The report takes effect on 1 December 2012. It details an integrated regional water monitoring network to collect data on water levels and basic water quality in the Surat Cumulative Management Area, on an ongoing basis.

The Minister for Sustainability, Environment, Water, Population and Communities, the Hon. Tony Burke, announced the initial areas where the IESC will undertake bioregional assessments. The bioregional assessments are a scientific analysis of the ecology, hydrology and geology of an area for the purpose of assessing the potential risks to water resources as a result of CSG and/or large coal-mining development. Bioregional assessments will be conducted in conjunction with relevant state and territory government agencies, natural resource management bodies and scientific agencies and will build on existing knowledge and expertise wherever possible.

The first five regions that have been identified for bioregional assessments are:

- Lake Eyre Basin – which is underlain by the Galilee, Cooper and Eromanga coal-bearing basins
- Northern Inland Catchments, incorporating the Namoi (which includes the Liverpool Plains), Border Rivers–Gwydir, Maranoa–Balonne and Macquarie–Castlereagh (coal-bearing basins underlying these catchments include Gunnedah Basin, Surat Basin, Bowen Basin and the Sydney Basin)
- Northern Sydney Basin and the Gloucester Basin (encompassing the Hunter Central Rivers natural resource management region)
- Southern Sydney Basin (encompassing the Southern Rivers, Sydney Metro, and Hawkesbury–Nepean natural resource management regions)



- Clarence–Moreton Basin (encompassing the South East Queensland and Northern Rivers natural resource management regions).

The selection of these five regions was based on an understanding of a number of important factors, including the extent of the current level of exploration activity for CSG and the number of current and potential CSG and coal-mining developments in these regions; areas where there is a high level of uncertainty and lack of information and data to assess and understand the potential impacts and cumulative impacts of CSG and coal-mining developments; and the presence of water assets of concern to the Australian Government.

In July 2010, the Australian Government and industry commissioned the Namoi Catchment Water Study (Schlumberger Water Services Australia 2012). The study collated and analysed data, and developed an integrated suite of models to assess the nature and extent of potential effects of coal and CSG developments on the water resources of the Namoi catchment area.

The study found that at current levels of resource development, extensive regional-scale impacts on water resources are unlikely. The water resources at risk were more likely to be in a small number of local areas, in places with numerous developments in close proximity, rather than regional in scale. The study stressed that the model developed was only suitable for regional-scale analysis and local scale effects would need to be considered on a project by project basis. It was noted that identifying impacts to groundwater quality and levels is a highly site-specific exercise due to diverse geological formations and climatic characteristics.

These findings highlight the importance of project-specific detailed investigations, supplemented by comprehensive monitoring and appropriate operational management. The study outlines potential mitigation options for groundwater and surface water flow levels, and suggests that more monitoring is required to enable more accurate analysis of hydraulic connections between water systems and to determine potential impacts to water quality.

The regional-scale assessments mentioned above are focused primarily where there is, or where there may potentially be, CSG development activity in the future. It is reasonable to expect that equivalent assessments will be undertaken in additional regions and jurisdictions in Australia as new resources are identified or where other forms of land use put increased pressure on water resources in any given region.

#### Accounting for and managing co-produced water

A water resource plan is normally supported by technical analysis that defines the size of the total consumptive pool of water available to be allocated to the various current and potential users and uses in a plan area. By allocating within this limit and according to the prevailing social values, sustainability is seen to be attained. However, not all CSG development is occurring in water resource systems where the size of the total consumptive water pool has been determined. For instance, the water held in the coal seam and associated layers is often contained by an aquitard or comprises saline groundwater, and has therefore not always been considered as a component of the groundwater resource or total consumptive pool. This is because, in the absence of CSG development, this water is not available to any other user and does not, therefore, constitute a resource. Hence, any water taken from the coal seam would be in addition to that already included in the total consumptive water pool.

Water extraction during CSG development could nevertheless impact on water security for other licensed users or the environment. Inter-aquifer connections mean that aquifers

surrounding coal seams are likely to be affected, at least in a minor way. Modelling in the Surat Basin has shown water drawdown in aquifers above and below the coal measures. The Underground Water Impact Report for the Surat Cumulative Management Area indicates that the average estimated net loss from the Condamine Alluvium to the Walloon Coal Measures is expected to be around 1100 megalitres (ML) per year over the next 100 years. This compares with current water extraction by CSG producers of approximately 18 000 ML per year, total predicted extraction by petroleum tenure holders over the life of the industry approximately 95 000 ML of water per year and current water extraction by non-petroleum and gas users in the cumulative management area of approximately 215 000 ML per year (QWC, 2012b).

Depressurisation as a result of CSG dewatering may cause the total water extraction from a plan area to exceed the total consumptive water pool limit for a specific period, and therefore be deemed unsustainable. However, it can be argued that the period of unsustainable extraction is finite and that this period is similar in length, in some situations, to the temporal averaging applied to sustainable yield volumetric analysis in many groundwater resource plans. Given the variability in natural systems, an argument could also be mounted that the impacts of CSG development could be managed adaptively by requiring a range of 'make-good' arrangements as part of the approval conditions and ensuring that the key values of the water resource system are maintained through water level and water quality triggers associated with the key assets. Such an approach is being implemented in Queensland and is discussed below.

Overall, whether CSG development is allowed, within a water entitlement context, is determined by the amount of the co-produced water extraction in relation to the size of the total consumptive water pool. This, and the ability of the CSG sector to obtain the necessary water entitlement through the various planning and market mechanisms, will play a role in determining if a project can proceed.

In practice, different approaches to the management of co-produced water operate in Australia, although CSG is currently only produced in Queensland and New South Wales. There are moves in New South Wales, Victoria and South Australia to ensure that the extraction of water during petroleum operations is incorporated into water resource planning mechanisms, often by licensing the use of water through the allocation of water entitlements within a planning regime to ensure the sustainable management of Australia's water resources. Conversely, Queensland applies an adaptive management approach where defined trigger thresholds are used to initiate make-good agreements for existing users and strategies to prevent or minimise impacts on groundwater dependent ecosystems.

Incorporating water in planning mechanisms through a water licence is seen by many as being the preferred approach to managing water specifically within the CSG industry. However, there are complications to the universal application of this policy approach.

#### *Queensland approach*

In Queensland, CSG extraction, including production of CSG water, is primarily regulated through the *Petroleum and Gas (Production and Safety) Act 2004* (P&G Act). The P&G Act provides rights to tenure holders to take or interfere with underground water and to use the water for carrying out authorised activities for the tenure. Although under the P&G Act CSG companies have the right to extract groundwater in the process of producing CSG, stringent conditions are imposed to ensure that the impacts resulting from the extraction are minimised. These conditions may include, for example, requirements to mitigate any



impacts on water bore owners resulting from CSG activities through make-good and other adaptive management strategies to minimise impacts on groundwater resources.

The volume of water produced in CSG operations is variable and unpredictable over time, and also variable between gas wells. In general, the level of water production will unavoidably diminish over time. At present, the Queensland Government considers that the uncertainty and unreliability of production makes it unsuitable for the purposes of 'water access entitlements'. The Queensland Government requires the measurement and reporting of volumes of co-produced water and it regulates the use of co-produced water through the CSG Water Management Policy 2010 (currently being redrafted). The purpose of the new draft policy is to encourage and guide strategic and well resolved approaches to the management of CSG water and related wastes. Broadly, this will be achieved by managing CSG water as a resource for preventing and minimising impacts on groundwater users and the environment, and maximising the productive use of CSG water (QLD DEHP, 2012b).

Queensland requires transparent accounting of groundwater extraction by the CSG industry under the P&G Act. This is achieved through managing impacts of CSG extraction through an adaptive management framework with management/mitigation strategies through a risk based approach. The adaptive management framework is detailed in chapter 3 of the *Water Act 2000* (Qld) and seeks to manage the cumulative impacts resulting from the extraction of CSG water through the designation of cumulative management areas and requirements for the preparation of an underground water impact report, for all petroleum tenures, including CSG, whether production testing or production. The framework includes make-good agreements with land owners and a dispute resolution process and establishes the Queensland Water Commission to manage the cumulative impacts of CSG activities.

#### *New South Wales approach*

Water extraction associated with CSG development in New South Wales is regulated differently than in Queensland. The New South Wales Government has in place an Aquifer Interference Policy (NSW DPI, 2009), which explains the regulatory requirements for aquifer interference activities under the *Water Act 1912* (NSW), the *Water Management Act 2000* (NSW) and other relevant legislative frameworks. Examples of aquifer interference activities include mining, CSG extraction, injection of water, and commercial, industrial, agricultural and residential activities that intercept the water table or interfere with aquifers.

The NSW policy provides a mechanism for equitable water sharing among different types of water users and ensures that water taken by aquifer interference activities is licensed and accounted for in the water budget and water-sharing arrangements.

Since June 2011, new mining and petroleum exploration activities that take more than 3 ML per year from an aquifer are required to hold a water access licence. As part of the water access licence, the potential impacts of the proposed water extraction are taken into account prior to approval.

Mining and CSG development proposals on strategic agricultural land also need to be assessed by a Gateway Panel before they can proceed to a development application. Part of this assessment requires consideration of the impacts of the proposal on aquifers against the Aquifer Interference Policy.

### *Assessing alternative approaches*

The licensing and metering of groundwater is not consistently applied between jurisdictions. This is a reflection of the differences in implementation of the National Water Initiative. The National Water Initiative recognises that special circumstances may apply to the minerals and petroleum sectors. Clause 34 of the Intergovernmental Agreement on a National Water Initiative notes that:

'there may be special circumstances facing the minerals and petroleum sectors that will need to be addressed by policies and measures beyond the scope of this Agreement. In this context, the Parties note that specific project proposals will be assessed according to environmental, economic and social considerations, and that factors specific to resource development projects, such as isolation, relatively short project duration, water quality issues, and obligations to remediate and offset impacts, may require specific management arrangements outside the scope of this Agreement'.

Although current jurisdictional approaches derive from different regulatory rationales, they have the same strategic intent in achieving balanced and consistent outcomes, including protection of the environment and the rights of other water users. The alternative approaches, therefore, have the potential to achieve the overarching objective of mitigating impacts. No single jurisdiction employs all aspects of leading practice relating to the accountability and management of co-produced water.

In addition, achieving sustainable outcomes is dependent on how accounting arrangements interact with and are complemented by other aspects of CSG water policy including for example aquifer recharge, make-good arrangements, adaptive management and the monitoring regime.

Another important consideration in this context is the Great Artesian Basin Coordinating Committee's position on CSG in relation to the \$450 million investment by the Australian Government and landholders under the Great Artesian Basin Sustainability Initiative (GABSI) (Queensland Government, 2011). The committee is concerned that GABSI investments will have little benefit if extractive industry development in the Great Artesian Basin, in particular CSG, leads to medium and long-term reductions in artesian pressure in aquifers there (GABCC, 2012). It will be important to ensure that there is compliance between different strategies, in particular the GABSI investment and CSG development.

The National Water Commission notes that there is no universal solution to co-produced water management and the available options must be considered for each project. Economic, social and environmental contexts vary widely and are taken into account in preparing and evaluating projects (NWC 2011).

All Australian governments agreed to implement the National Water Initiative:

'In recognition of the continuing national imperative to increase the productivity and efficiency of Australia's water use, the need to service rural and urban communities, and to ensure the health of river and groundwater systems by establishing clear pathways to return all systems to environmentally sustainable levels of extraction'.

The objective of the agreement is to 'provide greater certainty for investment and the environment, and underpin the capacity of Australia's water management regimes to deal with change responsively and fairly' (COAG, 2004b).

Achieving the objectives of the National Water Initiative will require state and Commonwealth cooperation to ensure that the long-term effects of groundwater extraction for CSG production do not adversely affect water security for other users and the

environment. This will require quantification of the cumulative effects on connected water systems and an awareness of the long timeframes involved.

Noting that water reform falls outside the mandate of resources and energy ministers, the Standing Council on Energy and Resources should refer these matters to the Standing Council on Environment and Water for consideration as a matter of priority.

#### Maximising re-use of extracted water

In Queensland, the draft CSG Water Management Policy (QLD DEHP, 2012b) encourages the beneficial use of recycled CSG water as a preferred management option. Beneficial uses of treated CSG water identified include substitution for water for existing irrigation schemes, new irrigation use, with a focus on sustainable irrigation projects, livestock watering and release to the environment in a manner that improves local environmental values. All CSG water is required to be treated to a defined standard before disposal or supplying to other users.

In New South Wales, the Aquifer Interference Policy outlines preferred disposal options to include reinjection to an aquifer, discharge to a river, on-selling to a nearby industry, agricultural development or potable water supply. Any option requires treatment of CSG water to an appropriate water quality standard to have minimal impact on any proposed receiving land and waters. Consideration must also be given to pollution issues which are regulated under the *Protection of the Environment Operations Act 1997* (NSW) (NSW DPI, 2012).

In a change from past practices, jurisdictions with the most significant CSG developments have moved to either completely ban or prevent the use of evaporation dams unless there is no feasible alternative. In addition to removing the risk of spills, and overflows in the event of flooding, the policy is directed toward maximising the potential beneficial use of co-produced water, given the importance of ensuring that CSG activities do not impact on other water users in the short and long term.

In other jurisdictions and in different circumstances, evaporation dams are permitted as an appropriate or even preferred form of disposal of co-produced water. This is generally the case in locations where there is already an abundance of water resources, or where the remote location and lack of other users of the water resources mean the cost and environmental impact of beneficial use cannot be justified.

If and where evaporation dams are used, they should be subject to rigorous risk assessment requirements and technical specifications to ensure they are properly lined and sealed and that there is safe and appropriate disposal of all leftover waste and residues.

The reinjection of co-produced water, whether for the purpose of addressing aquifer depletion, for later consumptive use, or for environmental benefit or simply disposal, requires an appropriate and consistent approach. Managed aquifer recharge is a process whereby a water source, such as recycled water (in the case of CSG projects, this is treated co-produced water) is used to recharge an aquifer with water under controlled conditions. In this process the aquifer is used to store surplus water for later use or for environmental benefit. The Australian Guidelines for Water Recycling: Managing Health and Environmental Risks (Managed Aquifer Recharge) (2009) provide a sound and consistent basis for protecting human health and the environment at managed aquifer recharge operations in all of Australia's states and territories. The guidelines outline a clear process which involves establishing the environmental principles which need to be protected, a risk assessment



process and compliance monitoring. The guidelines should be applied where co-produced water (either treated or untreated) is to be re-injected in the circumstances described above.

By contrast, the use of reinjection as a means of *disposal of contaminated water* (such as hazardous wastes and brine) into suitable underground systems, where there are no impacts or implications for other water users or the environment and it is not intended the water be recovered subsequently, is an issue which has not been widely addressed in Australia.

The Queensland Government has identified a range of options for salt and brine waste management in the draft CSG Water Management Policy (QLD DEHP, 2012b). In order of preference, these include salt recovery for use as saleable products; the injection of brine underground into suitable geological formations; the piping of brine to marine waters; and the disposal of solid salts in land-based facilities. Disposal of brine requires a target geological formation that is:

- a single geological unit that is not regionally consistent and extensive
- isolated above and below by an aquitard or aquiclude within the hydraulic impact zone
- not an aquifer that does or could supply water for potable, agricultural, industrial and commercial purposes

Australian governments should evaluate international leading practices for application in Australia, such as that applied in the United States, where there are programs to regulate the construction, operation, permitting and closure of injection wells that place fluids underground for storage or disposal. The United States Underground Injection Control Program provides a framework for the disposal of hazardous wastes and brine by reinjection beneath the lowermost underground source of drinking water. This could provide a starting point for the development of leading practice in Australia.



## CHAPTER 5: HYDRAULIC FRACTURING

### KEY POINTS

- ❖ Hydraulic fracturing has been widely used in Australia for more than 40 years to increase the rate and total amount of oil and gas extracted from reservoirs. The process of hydraulic fracturing is not applied to all CSG operations in Australia.
- ❖ A sound understanding of the existing geology, hydrology and hydrogeology is essential to plan the fracturing process and ensure fracture stimulation activities are conducted in a safe manner that protects communities, the environment and water resources. Evidence-based decision-making ensures that actions taken by regulators and CSG operators on hydraulic fracturing are accountable and auditable.
- ❖ Effective monitoring of hydraulic fracturing activities allows for prompt identification and mitigation of any health, safety or environmental risks. Wells should be monitored on an ongoing basis to ensure integrity of the well and well equipment. Monitoring and reporting improves transparency and understanding of potential impacts of hydraulic fracturing and provides evidence to clearly demonstrate CSG operators' compliance with regulation.

### KEY FINDING

- 5.1 Leading practice in hydraulic fracturing is underpinned by regulatory regimes that manage well integrity, water management and monitoring and chemical use. Implementing leading practices in these areas is critical to governments effectively managing the impacts associated with the process of hydraulic fracturing.

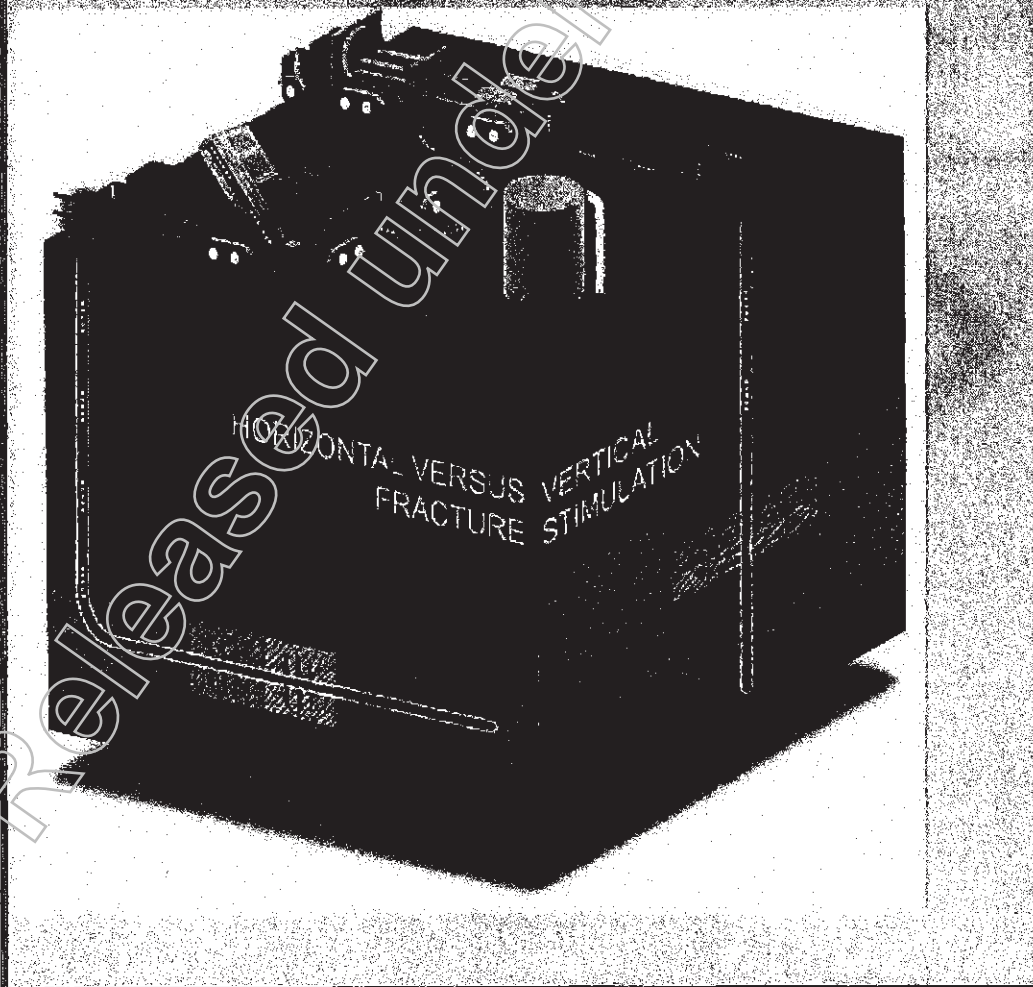
### WHAT IS HYDRAULIC FRACTURING?

Hydraulic fracturing is also known as fracture stimulation, fracking or fracking. The term hydraulic fracturing has been used consistently throughout this report.

Hydraulic fracturing is the process by which hydrocarbon bearing formations are stimulated to enhance the flow of hydrocarbons to the well head. The process involves the injection of fluid made up of water, sand and additives under high pressure through a perforated cased well into a geological formation from which hydrocarbons (oil & gas) are intended to be extracted. The pressure caused by the injection creates a fracture in the rock face where the well is perforated (CSIRO 2012a).

Hydraulic fracturing is a technique that has been employed in the petroleum industry globally for more than 60 years. It has been widely used in Australia for more than 40 years to increase the rate and total amount of oil and gas extraction from reservoirs. Hydraulic fracturing for stimulation of petroleum wells, as distinct from test wells, has been used in most jurisdictions in Australia, with the majority of activity in South Australia and Queensland.

Figure 5-1. Schematic diagram of the hydraulic fracturing process.





Source: Canada National Energy Board (2012).

In the Australian CSG industry, hydraulic fracturing is not applied to all CSG resources. It may be used if the coal seam's natural permeability is insufficient to deliver the required gas flow rates at the well. Since 2000, around 8 per cent of CSG wells in Queensland have been hydraulically fractured. The industry estimates that between 10 and 40 per cent of wells yet to be drilled for current CSG developments across Australia may need some method of flow enhancement, including hydraulic fracturing (QLD DERM, 2011a).

For a large vertical CSG well treatment, a fracture might typically extend to a distance between 200 and 300 metres from the well. The fractures grow slowly, for example an average velocity may be less than 10 metres per minute initially and slow to less than 1 metre per minute at the end of the treatment (CSIRO, 2012b). The 'proppant' in the hydraulic fracturing fluid acts to keep the fracture open after injection stops, and forms a conductive channel in the coal through which the water and gas can travel back to the well. After the fracturing is complete, the hydraulic fracturing fluid is brought back to the surface over time and treated before being used again or disposed of.

Well integrity standards include arrangements for hydraulic fracturing and are the key mechanism for managing potential impacts. The impacts that arise generally relate to potential aquifer interconnectivity and chemical contamination.

A key area of concern has been the risk of damage to aquifers through the propagation of fractures into these systems. This risk can be managed by understanding the geology and by controlling the stimulation pressures applied to the targeted formation. The risk is greatest where coal seams may be close to, or in direct contact with, overlying and underlying aquifers. Under these circumstances, hydraulic fracturing may need to be restricted or prohibited as the vertical propagation of fractures into aquifers could be difficult to avoid.

In addition, the use of chemical additives has the potential to cause contamination where there is uncontrolled leakage into the broader environment. This issue is addressed in Chapter 6.

In summary, the key impact associated with hydraulic fracturing has been identified and is described in Table 5.1.

Table 5.1 Key potential impact associated with hydraulic fracturing

Table 5.1 Key potential impact associated with hydraulic fracturing		
10	Over pressurisation during hydraulic fracturing operations leading to excessive propagation of fractures	<ul style="list-style-type: none"> <li>Contamination of shallow and deep aquifers as a result of induced interconnectivity</li> <li>Changed hydraulic pressures allowing migration of hydraulic fracturing fluids, methane and geogenic agents out of targeted coal seam gas beds into adjacent aquifers</li> </ul>

## Leading practices

(Relates to leading practices 1, 2, 3, 4, 5, 12, 13, 14, 15, 16, 17 and 18)

Well integrity is fundamental to reducing the contamination risks associated with hydraulic fracturing. Leading practice in well integrity is discussed in Chapter 3. Additional leading practices in hydraulic fracturing are outlined below.

### **12: Require a geological assessment as part of well development and hydraulic fracturing planning processes**

A sound understanding of the existing geology, hydrology, and hydrogeology is essential to plan the fracturing process and ensure fracture stimulation activities are conducted in a safe manner that protects communities, the environment and water resources. This approach underpins the pursuit of evidence-based land use decision-making, informing risk-based approaches that make transparent the consequences of different land uses.

CSG operators need to be aware of the location of aquifers, as well as faults and fractures (including micro fractures) that could give rise to interconnection pathways between coals and surrounding aquifers. Knowledge of the location and thickness of potential aquitards surrounding the coal seam will also assist in determining the maximum fracture pressures that can be used safely.

A wide range of geophysical techniques are used to characterise the separation of coal seams from surrounding aquifers. These include surveying, modelling and imaging (CSIRO, 2012b). This helps to identify and avoid hydraulic fracturing operations that may cause continuity with surrounding aquifers. A similarly wide range of geological and geomechanic measurements are made to understand the properties of the coal seam and surrounding rock. This enables each hydraulic fracturing operation to be designed so that the fracture is contained within the coal seam. Monitoring methods also provide quality control on fracture design and fracture growth, to ensure the fractures extend only in the target coal seams.

The real-time data collected in previous hydraulic fractures in similar geologies should be used to inform the hydraulic fracturing planning process. This data can be used to refine numerical models used to plan future hydraulic fracturing. However, certainty in fracture growth is not possible because estimation of the growth is based on limited data due to the statistical variation of parameters in a sequence of rock layers.

The American Petroleum Institute's guidance document, *Hydraulic Fracturing Operations – Well Construction and Integrity Guidelines*, notes that once the location for a well has been selected and before it is drilled, water samples from any source of water – rivers, creeks, lakes, ponds, and water wells – located nearby should be obtained and tested in accordance with applicable regulatory requirements (API, 2009). If testing was not done prior to drilling, it should be done prior to hydraulically fracturing. The area of sampling should be based on the anticipated fracture length plus a safety factor. This procedure will establish the baseline conditions in the surface water and groundwater. It is noted that an accurate baseline can only be developed by collecting samples on a number of occasions over one to two years. This is important to ensure that the baseline data reflects any seasonal variations in sampling parameters. If subsequent testing reveals changes, this baseline data will allow the operator to determine the potential cause.

Experience in shale gas has demonstrated that 'mini-frac' pre-hydraulic fracturing tests can be used to inform the actual hydraulic fracturing process and identify whether the design



may need to be adjusted for site-specific conditions. A mini-frac pre-hydraulic fracturing test uses a smaller volume of hydraulic fracturing fluid at lower pressures and less duration. If applied, mini-frac testing should be coupled with real-time monitoring of water bores to allow operators to identify any potential interconnectivity between the hydrogeological layers (see leading practice 13).

**13: Require process monitoring and quality control during hydraulic fracturing activity**

Effective monitoring of hydraulic fracturing activities allows for prompt identification and mitigation of any health, safety or environmental risks.

Consistent with the American Petroleum Institute guidelines (API, 2009), there are certain monitoring parameters that should be observed in all hydraulic fracture treatments, and others that should be employed from time to time based on site-specific needs. Monitoring during hydraulic fracturing operations should include parameter monitoring, pressure monitoring and seismic monitoring.

Hydraulic fracturing activities are designed so the propagated fractures remain below the upper confining formation. The dimensions, extent, and geometry of the propagated fractures are controlled by pump rate, pressure, volume, and viscosity of the fracturing fluid. Fracture monitoring techniques provide confirmation of fracturing coverage, and allow the refinement of the models and enhancements to procedures for future operations.

Pressure levels throughout the hydraulic fracturing process should be monitored so that any unexplained deviation from the fracturing design can be immediately detected and analysed before operations continue. Adjustments based on real-time data obtained from process monitoring can be made and monitored in real time. Unexpected or unusual pressure measurements during the hydraulic fracturing process could indicate a problem such as a leak in the casing string, and if this is the case it is possible to shut down the fracturing process immediately.

The extent of fracturing can be measured at the time of hydraulic fracturing through well logging and remote monitoring, such as by microseismic techniques. Tiltmeters can be used to measure the fracture orientation and volume. Offset instrumented wells are sometimes drilled to monitor fracture growth and may be used later during production to monitor seam pore pressure.

To assist monitoring further, chemical tracers can be added to fracturing fluid (Royal Society, 2012). The performance of the fracturing process can be inferred from the concentration of specific tracers combined with the recovery time and volumes of flowback water. The dilution of tracers can improve understanding of fracture fluid loss and flowback efficiency. Detection of tracers can confirm whether proppant is placed as intended and identify leakage points.

Wells should be monitored on an ongoing basis to ensure integrity of the well and well equipment. A fracturing completion report should be compiled and submitted to the regulator.

## Analysis

The concerns in Australia over the practice of hydraulic fracturing relate to chemical use and the possible contamination of aquifers. Regulatory practices discussed in the chapters on

well integrity, water management and monitoring, and chemical use (see chapters 3, 4 and 6) are directly relevant to Australian practice in hydraulic fracturing.

### Geological assessments

The regulatory framework for managing environmental assessment, monitoring and compliance for hydraulic fracturing activities can be found within existing environmental, petroleum, water and work health and safety legislation in jurisdictions. There is little variation between jurisdictions in terms of the legislation under which the requirements may apply.

Petroleum regulatory arrangements cover all aspects of well design, construction, management, operation and abandonment. Activities must be carried out with due care and in accordance with good industry practice. Regulations generally make reference to approved codes of practice relevant to the construction of petroleum wells.

Current legislation provides a mechanism to manage the process and impacts of hydraulic fracturing. For example, risk assessments are required to include a mass balance determining the concentrations and absolute masses of chemicals that will be left in situ following drilling, completion and stimulation operations. They must include the results of any fluid monitoring undertaken in the course of previous drilling, completion and stimulation operations. If the results of the risk assessment indicate that the site-specific conditions are deemed to be too high risk for hydraulic fracturing, then the activity will not proceed.

Across jurisdictions, as part of the environmental management plan process, geological assessments are required to determine the environmental impact of hydraulic fracturing. In some jurisdictions, such as Western Australia and South Australia, more specific geological prognosis requirements exist in various schedules and policies. This may include well objectives and project definitions accompanied by a time or depth map of near target horizon(s) and seismic sections, where possible.

### Monitoring and quality control during hydraulic fracturing

Jurisdictions use a range of legislation, codes and industry standards to ensure they provide a consistent and transparent exploration and production management regime. These are coupled with environmental standards, monitoring and enforcement, which ensure that industry complies with their obligations and meets community expectations. This includes comprehensive monitoring and reporting to relevant regulators.

For example, the Code of Practice for Constructing and Abandoning Coal Seam Wells in Queensland requires CSG operators to carry out a risk assessment to identify the risks that may occur during well construction, operation and abandonment, which includes hydraulic fracturing.

Prior to obtaining an authorisation to undertake hydraulic fracturing activities, the Queensland Government requires operators to:

- provide details of their proposed hydraulic fracturing operations including the location of wells
- detail the chemicals to be used and the toxicity of ingredients and mixtures.

- develop a risk assessment that must be carried out for any well prior to it being hydraulically fractured to ensure that the activity is managed to prevent environmental harm.

This information is used by the government to impose strict environmental conditions on approvals. This may include requirements for CSG operators to:

- drain and rehabilitate any ponds that were designed to evaporate CSG water and hydraulic fracturing fluid over the long term
- undertake long-term monitoring of water produced from wells that have been hydraulically fractured
- have comprehensive contingency and emergency response planning for incidents related to water quality
- monitor groundwater and landholders' bores prior to and following hydraulic fracturing activities.

CSG operators are legally required to notify the regulator of any environmental incident or if a breach of condition occurs.

In addition, regulators closely monitor hydraulic fracturing activities through a proactive compliance program including:

- attendance at hydraulic fracturing activities
- auditing hydraulic fracturing operations
- desktop audits of the information submitted by CSG operators
- independent monitoring of water bores in proximity to CSG operations.

CSG operators must also notify landholders in writing at least 10 business days before undertaking hydraulic fracturing activities on a property and again within 10 business days of completing those activities. These written notices must list the anticipated and actual composition of hydraulic fracturing fluids used, including chemicals and volumes. This ensures that landholders are fully informed about the type and extent of hydraulic fracturing activities being undertaken on their land.

In addition, the NSW Code of Practice for CSG Fracture Stimulation Activities outlines mandatory requirements and leading practice associated with all aspects of hydraulic fracturing.

The design of the fracturing activity must be described in a fracture stimulation management plan. This description must incorporate:

- characterisation of geological formations, including the identification of rock types and conditions, aquifers and hydrocarbon-bearing zones
- definition of distances to these aquifers from the target coal beds
- identification of the characteristics of intervening strata, including porosity/permeability and the extent of natural fracturing
- determination of geological stress fields and areas of faulting
- determination of maximum pressures to be used for fracture stimulation, based on the characteristics of the surrounding geology

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- modelling of the likely fracture propagation field, including extent and orientation
- discussion of any potential for the fracture propagation field to exceed the modelling described in the previous dot point.

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## CHAPTER 6: CHEMICAL USE

### KEY POINTS

- ❖ The responsible management of the use of chemicals in CSG operations and mitigation of any potential impacts chemicals could have on human health and the environment is a key community concern and high priority for governments and industry.
- ❖ Chemical use in CSG activities is a controlled process through its regulation under a combination of Commonwealth and state and territory and international legislation, standards and code of practice for work and public health and safety and environmental protection.
- ❖ Work is underway by governments and industry to develop more environmentally benign alternatives to chemicals used in CSG activities, and better understand chemicals and their potential impacts on human health and the environment through national chemical assessments.

### KEY FINDINGS

- 6.1 Community confidence and transparency in the regulation of chemicals used in the CSG industry could be improved through targeted information and education campaigns on the role and functions of chemical regulatory agencies.
- 6.2 Victoria should ensure continued work towards best practice legislation which delivers chemical management outcomes that are either equivalent to or exceed the model work health and safety legislation agreed by COAG.
- 6.3 Further work is required to meet identified leading practice in assessing the combination effects of chemical mixtures. Australian governments should consider initiating a project on the cumulative effects of chemical mixtures to identify potential human health and environmental risks associated with such mixtures, in conjunction with international collaboration and information sharing.

## Chemical use in CSG operations

The petroleum industry uses chemicals in many different ways in its operations. Aspects of CSG operations requiring chemical use are summarised below.

**Well drilling and construction** – Drilling fluids (also known as drilling muds) are used during the drilling of CSG wells to facilitate boring by reducing friction; stabilising rock layers, clays and shales; and optimising drilling times (APPEA 2012; Colborn et al. 2011). These fluids are most often water based with clays, fluid loss control additives, density control additives, and viscosifiers (QLD DEEDI, 2011b).

**Hydraulic fracturing** – Hydraulic fracturing fluids are typically composed of water, a 'proppant' (a contraction of the words 'propping' and 'agent') used to hold open cracks in the formation so that energy has a pathway to access the well (Halliburton, 2012), usually in the form of sand, and chemical additives. The chemical additives, which typically make up approximately 1 per cent of the hydraulic fracturing fluid composition, vary depending on the application, the nature of the coal seam, the CSG operator and, in some cases, the legislation and regulations applicable to the region in which the CSG field is being developed.

Some commonly used chemical additives, and their uses, in hydraulic fracturing fluids, include:

- guar gum, which is used to create a gel that transports sand through the fracture
- bactericides, such as sodium hypochlorite and sodium hydroxide, which are used to prevent bacterial growth that contaminates gas and restricts gas flow
- 'breakers' such as ammonium persulfate, which dissolve hydraulic fracturing gels so that the fractures can transmit water and gas;
- surfactants, such as ethanol and the cleaning agent orange oil, which are used to increase fluid recovery from the fracture;
- acids and alkalis, such as acetic acid and sodium carbonate, which are used to control the acid balance of the hydraulic fracturing fluid.

**Water management** – In addition to the chemicals used for the exploration and production of CSG from the subsurface, management and disposal methods for co-produced water and brine may entail further chemical treatments. This is discussed further in Chapter 4.

**General site infrastructure** – Other chemicals needed to support site infrastructure operations may include fuels and oils for machine and plant operations, transport, building services and construction purposes.

The use of chemicals in these applications could represent a potential human health and/or environmental issue unless managed appropriately. Potential issues associated with chemical use in CSG operations can be categorised according to the potential risks associated with chemicals in the workplace, and the potential for environmental contamination as a result of chemical use. The issues associated with chemical use in CSG operations are summarised in Table 6.1.

Table 6.1: Key potential issues associated with chemical use

11	Chemical use in well drilling and hydraulic fracturing operations	<ul style="list-style-type: none"> <li>Contamination of aquifers by chemicals (drilling fluids, drilling mud) used in drilling operations and hydraulic fracturing</li> <li>Contamination of aquifers caused by an alteration of water chemistry that mobilises naturally occurring (geogenic) compounds from coal seam beds and other rock strata</li> </ul>
12	Improper transport, handling, use and storage of chemicals used in drilling, hydraulic fracturing, water treatment, disposal and other operations; including from accidents, spills and extreme events (e.g. fire, flood)	<ul style="list-style-type: none"> <li>Contamination of the surrounding environment, including surface water, groundwater and land</li> <li>Chemical effects on human, animal, environmental and agricultural health</li> </ul>

### Leading practices

(Relates to leading practices 1, 2, 3, 4, 5, 14, 15, 16, 17 and 18)

A total of 10 leading practices for chemical management comprise a set of approaches that are currently in use in different Australian jurisdictions, nationally and internationally, which will aid the mitigation of impacts associated with chemicals in the CSG industry. Five of these leading practices have been discussed previously in the overarching leading practices 1, 2, 3 and 4 and leading practice 5 for well integrity. The remaining leading practices for managing chemical risks 14, 15, 16, 17 and 18 are discussed below.

#### 14: Handle, manage, store and transport chemicals in accordance with Australian legislation, codes and standards

A robust framework of legislation and standards ensures that the potential risks associated with toxic chemicals and dangerous goods are suitably addressed and mitigated for the protection of human health and the prevention of environmental contamination. The safe handling, management, storage and transport of chemicals are not unique to the CSG industry and have been required across an array of industries for several decades.

#### 15: Minimise chemical use and use environmentally benign alternatives

The use of chemicals in all aspects of CSG operations should be minimised where possible to reduce risks to human health, contamination of the surrounding environment and impacts on the beneficial use of the target aquifer or any other aquifer.

To minimise the additives in drilling fluids, the geology and petrology of the region should be assessed as part of the well development plan (see also leading practice 12, which requires geological assessments as part of well development) to inform the type of drilling fluid to use and to minimise any potential environmental impact.



Benign alternatives to chemical additives should be investigated for use in hydraulic fracturing operations. New chemical mixes are being developed to provide cleaner hydraulic fracturing processes and these should be considered for all CSG activities. The use of lower toxicity and biodegradable drilling fluid additives, or switching to drilling with only water in sensitive formations such as aquifers, should be applied wherever feasible.

**16: Minimise the time between cessation of hydraulic fracturing and flow back, and maximise the rate of recovery of fracturing fluids**

On completion of hydraulic fracturing, it is important that fracturing fluids are extracted from the well as soon as practicable. Recovery rates should be maximised to reduce the risk of chemicals used in the hydraulic fracturing treatment contaminating groundwater resources.

The fluids used in hydraulic fracturing are a potential source of contamination of aquifers. This can occur by flow-through interconnection pathways to surrounding aquifers, even where the risk is substantially mitigated by well integrity arrangements. After a coal seam has been hydraulically fractured, the potential for contamination can be further reduced by monitoring the recovery of flow-back water (water that was used in the hydraulic fracturing fluid).

Recovery of fluids should be maximised as far as practicable, however recovery rates will depend on the geology. The recovered water should be stored in appropriately designed, constructed and lined dams or storage containers before being either treated and recycled for beneficial use, or disposed of at a regulated waste disposal facility (see leading practice 11).

Experience in hydraulic fracturing in Australia and the United States has demonstrated that minimising the time between closing in the well after pumping in the fracturing fluids and allowing flow-back will minimise the likelihood of the fracturing fluids migrating out of the gas bearing layer (Green et al. 2012). Therefore the time between fracturing and allowing flow-back should be minimised in the CSG industry in Australia.

**17: Increase transparency in chemical assessment processes and require full disclosure of chemicals used in CSG activities by the operator**

The regulatory framework provides for rigorous assessments on chemicals used in CSG activities, to regulate operators' compliance with legislative requirements and to ensure the protection of human health and the environment. Information on these assessment processes, including what operators are required to disclose to the regulator, how the regulator conducts risk assessments, and the findings of assessments, should be transparent and readily accessible to the public.

Industry compliance, with robust, transparent chemical assessment processes, should instil a level of confidence within the community. This will also build trust in the regulator to ensure that the use of chemicals in CSG activities is socially and environmentally responsible.

Full disclosure of chemicals used in CSG activities to the public may be necessary to further increase public confidence. There is significant public interest in understanding the chemicals being used in CSG activities and any human and environmental risks. This public interest needs to be weighed against any claim of commercially sensitive information. In making information publicly available, a balance should be negotiated between the level of public disclosure, and the need to protect intellectual property and to encourage growth in



research and development and innovation. If public disclosure is not possible, full disclosure requirements to the regulator and chemical risk assessments undertaken by the regulator must still mitigate any potential impact to human health or the environment. The *Industrial Chemicals (Notification and Assessment) Act 1989* outlines how this balance is achieved.

If routine public disclosure is deemed necessary and appropriate, information to be disclosed should include:

- names of the companies producing fracturing fluids and associated products
- proprietary names (trade names) of compounds (fracturing fluid additives) being produced
- chemical names of each additive used in each of the fluids
- Chemical Abstract Service numbers of each of the chemical components used in each of the fluids
- general purpose and function of each of the chemicals used
- maximum concentration (per cent by mass) of the of the chemicals used
- any material safety data sheets for the chemicals used

In order to protect commercially sensitive information, these categories of information should be contained in separate groupings/lists so that specific combinations or formulas used for proprietary products cannot be determined.

**18: Undertake assessments of the combined effects of chemical mixtures, in line with Australian legislation and internationally accepted testing methodologies**

Since humans and their environments are exposed to a wide variety of substances, there is increasing concern about the potential adverse effect of the interactions between those substances when they are present simultaneously in a mixture. An assessment of the combined effects of chemical mixtures is crucial to determining the potential human health and environmental risks arising from chemicals used in hydraulic fracturing as part of CSG operations. The same is relevant to naturally occurring minerals and chemicals released from coal seams during the extracting process. Any activity involving the use of chemicals should be informed by robust science and high-quality data, and should have appropriate risk management frameworks to attain and sustain the trust of stakeholders. Assessments of such chemical combinations should be conducted in accordance with internationally accepted testing methodologies.

## Analysis

Current international standards, national and state legislation, guidelines, and codes of practice for work and public health and safety and environmental protection govern the management, control, and disposal of chemicals and provide a suitable framework for delivering leading practice for the use of chemicals in CSG operations. Consistent criteria have been established for the classification and labelling of chemicals under the United Nations' Globally Harmonised System of Classification and Labelling of Chemicals, which has been adopted by Safe Work Australia for the regulation of chemicals in the workplace.

The requirements for approval typically include an assessment of the potential environmental impacts resulting from the project (usually in the form of environmental assessments, environmental impact statements, or environmental impact reports). The

assessment includes consideration of chemical use, storage, handling, processing, transport, and disposal. There is also a requirement for a robust risk assessment of chemical use with respect to human health, environmental contamination and groundwater protection, and description of risk mitigation controls to be implemented as part of the operation. Furthermore, jurisdictions such as Queensland, New South Wales and Western Australia also require a safety management plan as part of their approach to risk control for chemical use.

In New South Wales the Code of Practice for Fracture Stimulation Activities (September 2012) brings together key aspects of leading practice. The code requires the operator to prepare a fracture stimulation management plan for approval by the regulator. This plan must identify:

- all chemicals to be injected as part of the fracture stimulation process
- the Chemical Abstract Service registry number for those chemicals
- the volumes and concentrations of those chemicals
- potential risks to human health arising from exposure to those chemicals
- the risk, likelihood and consequence of surface spills of these chemicals
- whether chemical concentrations at the point of injection will exceed Australian and New Zealand Environment Conservation Council and Australian Drinking Water Guidelines (and if not specified in the guidelines assess the toxic effect in accordance with OECD methodologies for testing of chemicals)
- the risk, likelihood and consequence of the injected chemicals affecting the beneficial use class of the target aquifer or any other aquifer
- how those chemicals will be stored and managed.

#### Handling and management

Extensive legislation, standards and codes of practice are in place in Australia for the management, handling, storage, classification, and labelling of hazardous materials and dangerous goods in the workplace.

In July 2008, COAG formally committed to the harmonisation of work health and safety laws by signing an Intergovernmental Agreement for Regulatory and Operational Reform in Occupational Health and Safety. The model legislation consists of an integrated package that includes the Model Workplace Health and Safety Regulation 2011, which is supported by model work health and safety regulations, model codes of practice and a national compliance and enforcement policy.

The aim of the nationally harmonised work health and safety laws is to ensure that all people are given the highest level of health and safety protection from hazards arising from work, as far as reasonably practicable, and to provide greater certainty for businesses (in particular those operating across state borders). Specifically, the model legislation includes requirements for the safe use, storage and transport of plant, structure and substances (including toxic chemicals).

The Commonwealth, Queensland, New South Wales and the Northern Territory have implemented the model legislation, and Western Australia, Tasmania, South Australia are in the process of finalising adoption of the model. Minor variations have been or will be made as necessary to ensure individual legislation is consistent with relevant drafting protocols and to achieve consistency with other laws and processes operating within each jurisdiction.

Victoria chose not to adopt national model legislation and current health and safety legislation remains in place under the *Occupational Health and Safety Act 2004* (Vic.) and the *Occupational Health and Safety Regulations 2007* (Vic) (Ballieu, 2012).

### Minimise chemical use and adopt benign alternatives

The minimisation of chemical use is commonly regulated in jurisdictions through environmental management processes, where the operator is required to demonstrate that the volume and concentration of chemicals is such that their impact on the environment will be as low as reasonably practicable. For example, in South Australia, minimisation of the use of chemicals is a matter dealt with as an environmental objective in the statement of environmental objectives.

Legislative and/or policy amendments by the New South Wales, Queensland, Western Australian, Northern Territory and Victorian governments have prohibited the addition of benzene, toluene, ethylbenzene, xylene (known as BTEX) compounds to drilling and hydraulic fracturing fluids. Furthermore, Tasmanian policy promotes the sparing use of drilling additives and the adoption of alternative, biodegradable products where available.

The petroleum services industry has responded to public concern that hydraulic fracturing fluids may contaminate water resources by developing more benign alternatives. CSG companies and their contractors should continue their efforts to adopt the use of more benign chemical alternatives wherever feasible.

### Minimise time and maximise rate of recovery in hydraulic fracturing

Queensland has in place an explicit requirement to recover fracturing fluids to 150 per cent of the volume of introduced fracture fluid (QLD OHP, 2011). In New South Wales, flow-back water is required to be promptly pumped from the well to maximise the recovery of fluids injected as part of the fracture stimulation activity and pumping should be continued until background water quality parameters for the target formation are reached (NSW DTI, 2012b).

In other jurisdictions, regulatory regimes, this leading practice could be regulated through their environmental management processes.

### Transparency in chemical assessment processes and chemical disclosure

#### *Chemical assessment processes*

The environmental management processes in a number of jurisdictions require the identification of risks, including those presented by chemical additives, as well as the determination of appropriate risk mitigation strategies. As part of this process, toxicology assessments of chemicals used in fracturing are a common requirement.

Industrial chemicals used in drilling and hydraulic fracturing in Australia are required to be listed on the Australian Inventory of Chemical Substances (a national inventory). All new industrial chemicals must be notified and assessed by the National Industrial Chemicals Notification and Assessment Scheme (NICNAS). The vast majority of the chemicals on the national inventory have not been assessed for human health and environmental impacts, as they were grandfathered at the time NICNAS was established. NICNAS has not assessed any chemicals for their use in hydraulic fracturing. However, four of the chemicals used in hydraulic fracturing have been assessed for other uses, such as sodium persulphate in hair



bleach, and agricultural chemicals such as biocides, used to prevent the build-up of algae in wells.

There have been public calls for NICNAS to assess chemicals used in hydraulic fracturing, including by the Senate's Rural Affairs and Transport References Committee in its interim report on the impact of mining coal seam gas on the management of the Murray-Darling Basin (recommendation 10) (RATRC, 2011) and by the NSW Legislative Council Coal Seam Gas Inquiry (recommendation 9) (NSW Legislative Council, 2012).

Recently the Australian Government, following consideration of a project proposal by the Interim Independent Expert Scientific Committee, commissioned a multi-staged project to undertake an independent assessment of chemicals associated with CSG extraction, particularly those used in hydraulic fracturing.

The project, being undertaken jointly by NICNAS, the Commonwealth Scientific and Industrial Research Organisation (CSIRO), the Department of Sustainability, Environment, Water, Population and Communities (SEWPaC), and Geoscience Australia, will deliver a comprehensive national assessment of the potential human health and environmental risks arising from chemicals currently associated with CSG extraction, and assess the risks arising from naturally occurring geogenic contaminants released from Australian coal seams as a result of CSG extraction.

Stage One of this project aims to develop an understanding of the occupational, public health, and environmental risks of chemicals associated with hydraulic fracturing used for CSG extraction in an Australian context. The assessment will determine the chemicals of concern and their hazards; identify the key routes of exposure to these chemicals; assess risks, and provide advice on risk management. This stage will also include preparatory work to identify geogenic contaminants associated with coal seam gas operations in Australia for the subsequent analysis of risks arising from geogenic contaminants via various exposure routes.

International experience from the United States suggests that surface pathways (i.e. operational water management issues) present the highest risk to the environment, with groundwater a secondary/long-term issue (Groat and Grimshaw, 2012). Hence, the first stage of the project is focusing on the surface water exposures arising from spills of chemicals used hydraulic fracturing and contamination of flow back and produced waters with these chemicals. The project has commenced and Stage One is expected to take approximately 18 months to complete.

Subsequent stages will examine impacts on deep groundwater systems in more detail. The project will provide a publically accessible evidence base for determining appropriate management frameworks for these chemicals as part of the broader management of CSG activities. NICNAS will directly convey the risk management recommendations to the relevant regulators and publish information for the general public on the NICNAS website.

#### *Chemical disclosure*

Jurisdictions have in place legislation and/or policy that requires the disclosure of the nature, type and concentration of chemicals used in hydraulic fracturing relevant to the environmental impacts of the activity to the relevant environment protection authority, government department and/or minister as part of the approvals process. Furthermore, in Queensland under its Petroleum and Other Legislation Amendment Regulation (No. 1) 2011, the holder must ensure that a hydraulic fracturing activities completion report is



accompanied by a statement describing the composition of the hydraulic fracturing fluid, including:

- the quantity of each component of the hydraulic fracturing fluid in kilograms, litres, or kilolitres, as appropriate
- the concentration of each component of the hydraulic fracturing fluid
- the name of any chemical compound contained in the hydraulic fracturing fluid.

As discussed above, in New South Wales the Code of Practice for Coal Seam Gas: Fracture Stimulation Activities requires full disclosure of chemicals to the regulator through a fracturing stimulation management plan.

Although it has no CSG activity, Western Australia has recently legislated disclosure requirements for products, additives, chemicals and other substances that may be used by the operator for drilling, hydraulic fracturing or other 'down well' petroleum-related activities, as outlined in Box 6.1.

**Box 6.1: Western Australia: chemical and other substance disclosure requirements**

In Western Australia, under the Petroleum and Geothermal Energy Resources (Environment) Regulations 2012 and the Petroleum (Submerged Lands) (Environment) Regulations 2012, operators are required to provide the following information to the Western Australian Department of Mines and Petroleum, which may or may not be available in the public domain:

- disclosure details
- trade name
- supplier name
- purpose of use
- ingredients
- chemical abstracts service registry number
- maximum ingredient concentration in product
- maximum ingredient concentration in total fluid used
- material safety data sheet
- ecotoxicity information

Complementary to Western Australia's chemical disclosure requirements, the Australian Petroleum Production and Exploration Association's Western Australian Onshore Gas Code of Practice for Hydraulic Fracturing promotes, from an industry perspective, how gas operators should successfully and responsibly develop significant onshore gas reservoirs in Western Australia, including for the use of chemicals in hydraulic fracturing. Specifically, Guideline 4 (on the use of chemicals) states that details of all fluids to be used during hydraulic fracturing operations, including information on actual usage and fluid recovery, will be provided to the Western Australian Department of Mines and Petroleum and that operators will support the public release of this information.

## Risk assessment of combined chemical mixtures

No projects have yet been proposed in Australia to assess the effects of chemical combinations used in CSG operations. Work has been undertaken internationally to analyse the combination effects of chemicals and understand the interactions between these substances. As example of this is in Europe where a scientific study was undertaken to determine whether current approaches to mixture toxicology assessments provide sufficient protection level for the environment and human health or whether a regulatory change has to be implemented (European Commission, 2011). There is opportunity for Australia to work collaboratively and learn from international partners in developing a leading practice for the assessment of combination effects of chemical mixtures, including those used in CSG operations.



## APPENDIXES

### APPENDIX 1: COAL SEAM GAS – AN OVERVIEW

Australia's substantial gas resources provide a relatively flexible and clean energy source in the transition to a lower-carbon economy, greater flexibility in meeting peak energy demand, and higher thermal efficiencies relative to other comparable fossil fuels. Gas is also considered to be a complement to renewable energy sources, to help overcome the intermittent nature of energy generation from solar or wind energy.

In Australia, exploration for CSG commenced in the Bowen Basin, Queensland, in 1976 and commercial production began in the same area in 1996. CSG is now an integral part of the gas industry in eastern Australia. Advances in CSG exploration technology and successful exploration programs have seen Australia's CSG resources double since 2010 and at the end of 2011 were estimated to be 35 905 PJ (33 tcf). See Table A1.1.

Table A1.1: Australia's total gas resources

Resource category	Conventional gas		Coal seam gas	Tight gas	Shale gas		Total gas	
	PJ	tcf	PJ	PJ	PJ	tcf	PJ	tcf
Economic demonstrated resources (EDR)	113 400	103	35 905	-	-	-	149 305	136
Sub-economic demonstrated resources (SDR)	49 500	-	-	-	23 000	23	72 500	116
Inferred	21 000	-	122 020	1 000	22 052	20	155 072	141
Unidentified resources	100 000	-	-	-	10	200	100 010	337
Potential in-ground resources	n/a	n/a	258 888	235	n/a	n/a	435 600	396
Resources identified, potential and undiscovered	113 400	103	258 888	235	22 052	20	694 488	631

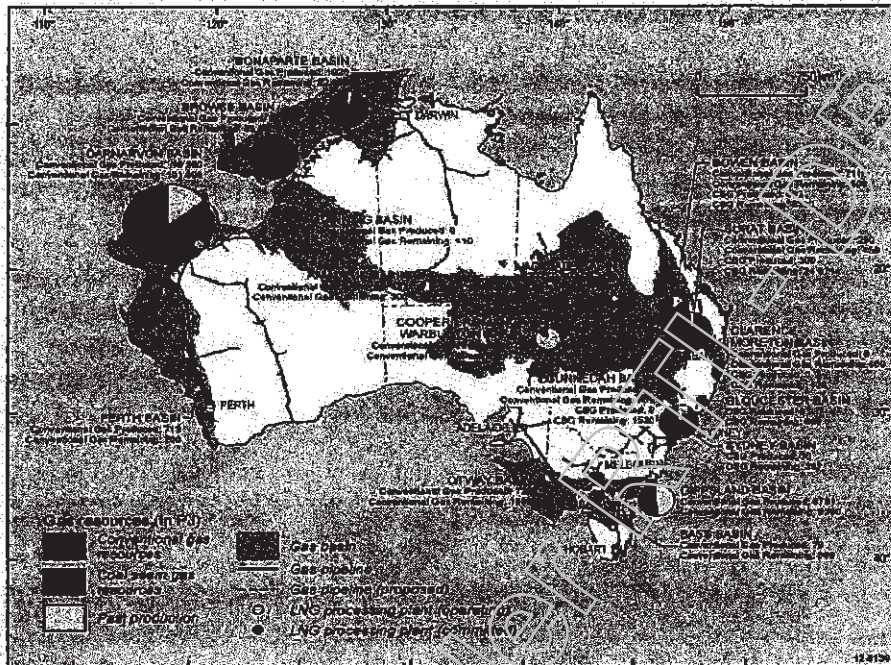
Note: Conventional gas demonstrated resources as of January 2011; CSG demonstrated resources as of January 2012; CSG 2P reserves and 2C resources are used as proxies for EDR and SDR, respectively.  
Source: RET, GA, BREE, 2012

CSG currently accounts for more than 35 per cent of supply in Australia's eastern gas market, meaning it accounts for more than 7 per cent of capacity in the National Electricity Market (NEM). In 2010–11, CSG provided over 4 per cent of the NEM electricity output.

Estimations of the total resource life of conventional and unconventional gas tend to increase over time as a result of new discoveries and developments in technology, which increase reserve potential. A large proportion of Australia's gas fields are undeveloped, which will result in ongoing revisions to estimates of our total gas resources. The national outlook for CSG unconventional gas resources estimates is potentially around seven times more than the current Economic Demonstrated Resources (EDR) (35 905 PJ), ranging from

275 000 PJ (250 tcf) to more than 330 000 PJ (300 tcf) (RET, GA, BREE, 2012). Figure A1.1 illustrates the location of Australia's conventional gas and CSG resources and infrastructure.

Figure A1.1: Location of Australia's conventional gas and CSG resources and infrastructure



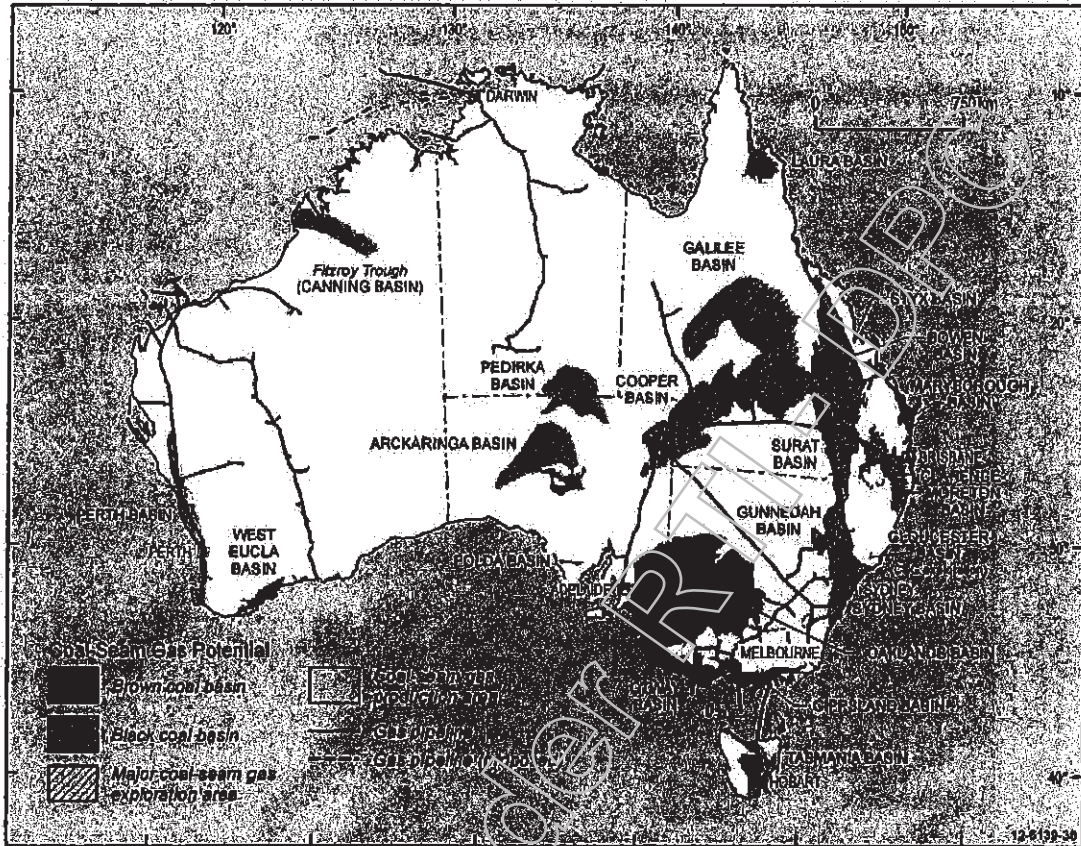
Source: RET, GA, BREE (2012).

In 2011, CSG accounted for about 24 per cent of the total gas EDR in Australia. Reserve life is around 150 years at current rates of production, noting that production is projected to increase substantially with the establishment of the CSG LNG industry (RET, GA, BREE, 2012).<sup>1</sup> In addition to EDR, Australia has substantial subeconomic demonstrated resources (65 520 PJ/60 tcf) (AEMC, 2011) and very large inferred CSG resources. There are even larger estimates of in-ground CSG resources in excess of 258 888 PJ (235 tcf) (RET, GA, BREE, 2012). The potential of CSG in Australia's coal basins is illustrated in Figure A1.2.

<sup>1</sup> This figure varies from source to source. The Committee for Economic Development of Australia's report *Australia's Unconventional Energy Options* (September 2012) estimates this figure to be 175 years of reserves at current production.



Figure A1.2: CSG potential in Australia



Source: RET, GA, BREE 2012

To date, the majority of CSG projects in Australia have been located in Queensland, where most known CSG resources are located, with more projects expected in New South Wales in coming years. As at April 2012, six domestic gas CSG projects in Queensland had been developed to supply the domestic market. Capital expenditure for these projects was valued at over \$1 billion, including the \$500 million Darling Downs Development project undertaken by Australia Pacific LNG (Origin and ConocoPhillips) north of Roma.

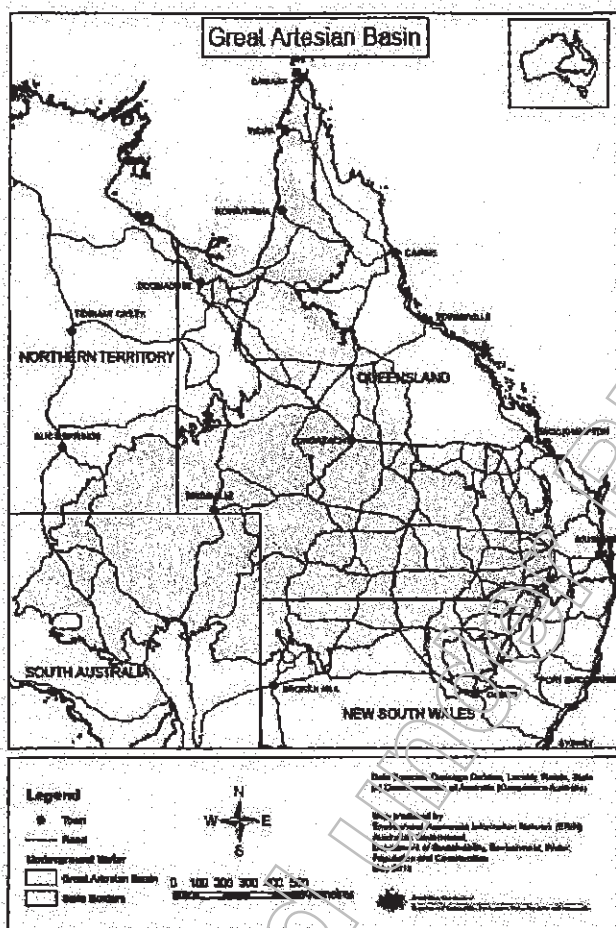
In addition, there are currently three CSG-based LNG processing facilities under construction in Gladstone, Queensland, which will be the first in the world to use CSG as a feedstock in the LNG production process for export, noting that China has already established small-scale CSG LNG for domestic use (BREE, 2012a). These LNG facilities represent a total investment of around US\$50 billion and will source CSG from a range of gas fields in the Surat, Bowen and Gallee basins. A further LNG project is currently under consideration by Arrow Energy, which is jointly owned by Royal Dutch Shell and PetroChina.

#### CSG activities and water

The extraction of CSG often involves the extraction of groundwater, which is water contained in underground formations, often within the pore spaces and fractures within the rocks. Where there is a range of competing water users the extraction of water during CSG activities has the potential to become a highly debated issue. A current example relates to CSG extraction from the Great Artesian Basin.

The Great Artesian Basin underlies approximately 22 per cent of Australia and occupies an area of more than 1.7 million square kilometres across parts of Queensland, New South Wales, South Australia and the Northern Territory (Figure A1.3).

Figure A1.3: Geographical coverage of the Great Artesian Basin



Source: Department of Sustainability, Environment, Water, Population and Communities website at [www.environment.gov.au/water/locations/gab/index.html](http://www.environment.gov.au/water/locations/gab/index.html).

### Comparison of self-extracted water use by industry

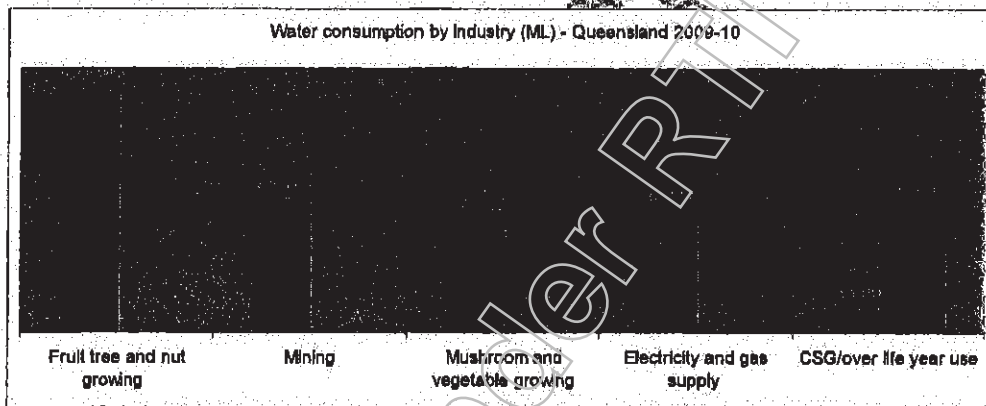
The annual recharge of the Great Artesian Basin has been estimated to be 1000 GL per year (CSIRO, 2008). However recharge rates are highly variable and difficult to measure. The current total water production for the CSG industry in the Great Artesian Basin is estimated to be 18 000 ML per year. However, the CSG industry is still in early development and this figure is expected to increase to 95 000 ML per year over the life of the industry. In the Surat basin, which is part of the Great Artesian Basin, some 21 000 water bores are located within the designated Surat cumulative management area. According to the Queensland Water Commission, these bores extract approximately 215 000 ML per year (QWC, 2011), generally for agriculture and stock and domestic uses.

While the water extracted from coal seams is generally separate from the water extracted by other users, modelling has shown there is inevitably some interconnectivity. For example, the Queensland Water Commission estimates the average estimated net loss from the

Condamine Alluvium to the Walloon Coal Measures will be around 1100 ML per year over the next 100 years.

In Queensland, water use by CSG is less than other water-using sectors but this is expected to rise as production increases. For example, the agriculture sector extracted 1 927 744 ML of water over 2009–10 compared to the mining sector, which extracted 114 114 ML (or 97 146 ML excluding CSG), of which CSG industry contributed 16 998 ML (ABS, 2012). This is also currently lower than agricultural industries of fruit tree and nut growing (181 918 ML) and mushroom and vegetable growing (92 014 ML) as well as electricity and gas supply, which consumed 89 535 ML (see Figure A1.4). As noted above, in the longer term CSG water extraction is forecast to average around 95 000 ML per year in the Surat Basin, which will see consumption levels comparative to those in other sectors across Queensland (QWC, 2012b).

Figure A1.4: Water consumption by Industry – Queensland 2009–10



Source: ABS, 2012



## APPENDIX 2: AUSTRALIA'S REGULATORY REGIME FOR CSG

This appendix provides an overarching discussion on key elements of Australia's regulatory regime for CSG, including COAG principles governing the development of best practice regulation in Australia, common characteristics of legislation associated with the management of CSG, the delineation between Commonwealth and state and territory governments' responsibilities and key regulatory issues facing governments in CSG development.

### Good regulatory practice in Australia

The Council of Australian Governments (COAG) is committed to ensuring Australian regulation is effective and efficient and avoids unnecessary compliance costs and restriction on competition. Good design of regulation is important to minimise unnecessary burdens on business and the community. COAG has agreed that all governments will ensure that regulatory processes in their jurisdiction are consistent with the best practice regulation principles as outlined in Box A2.1. This commitment to best practice regulation is applied to arrangements within ministerial councils, such as the Standing Council on Energy and Resources.

#### Box A2.1: COAG principles of best practice regulation

- Establishing a case for action before addressing a problem
- A range of feasible policy options must be considered, including self-regulatory, co-regulatory and non-regulatory approaches, and their benefits and costs assessed
- Adopting the option that generates the greatest net benefit for the community
- In accordance with the Competition Principles Agreement, legislation should not restrict competition unless it can be demonstrated that:
  - the benefits of the restrictions to the community as a whole outweigh the costs
  - the objectives of the regulation can only be achieved by restricting competition
- Providing effective guidance to relevant regulators and regulated parties in order to ensure that the policy intent and expected compliance requirements of the regulation are clear
- Ensuring that regulation remains relevant and effective over time
- Consulting effectively with affected key stakeholders at all stages of the regulatory cycle
- Government action should be effective and proportional to the issue being addressed.

Source: COAG, 2007



## Legislation for management of CSG production is generic

The upstream petroleum sector, including the CSG industry, is subject to all Australian laws. In practice, the activities of the sector are governed by a large body of legislation. For the regulation of CSG, in addition to various petroleum laws, other legislation governs CSG activities in areas such as the environment, heritage, development, native title and land rights, and work health and safety. A number of agencies across all levels of government have a role in regulating coal seam gas activities.

For the purpose of this Framework, discussion of legislation is limited to areas that address the areas of key community, environmental and safety concern as outlined above.

While jurisdictions currently have differing levels of CSG development, the generic, non-commodity specific nature of Australia's regulatory regime for the upstream petroleum sector enables jurisdictions to manage CSG development activities under existing legislation.

## Regulatory approach is 'layered'

While Australia's regulatory approach to managing CSG is generic in nature, specific references to CSG can be found in jurisdictions. Layered approach to managing CSG. The layered approach involves implementing a combination of legislation, policies, guidelines and codes of practice to approve, enforce and monitor CSG activities. Self-regulatory and co-regulatory approaches are also adopted, for example through the use of industry standards.

## Objective-based regulation

Recent years have seen a general trend away from prescriptive regulation towards objective-based regulation. This means that governments have moved away from prescribing specific standards or procedures and, instead, have emphasised achievement of the objectives of legislation, allowing industry to provide the prescriptive processes which determine how objectives are to be achieved. Regulation of the upstream petroleum sector has, at least in part, followed this trend, and further development of Australia's CSG sector and any future regulatory reform should follow suit (Productivity Commission, 2009).

Objective-based legislation requires the operator of the operation to identify the hazards and risks and describes how the risks are controlled. The operator must also describe the safety management system in place to ensure the controls are effectively and consistently applied. The principle is that those who create the risk must manage it. It is the operators' job to assess their processes, procedures and systems to identify and evaluate risks and implement the appropriate controls, because the operator has the greatest in-depth knowledge of their installation.

Such an approach can leave room for discretion by regulators, which potentially creates regulatory uncertainty, however it also provides an environment that fosters more innovative practices and developments.

There are circumstances where prescriptive requirements or rules are more appropriate, or where prescription will reduce regulatory burdens or are required as commensurate to the level of risk presented. Ultimately the appropriate degree of prescription in legislative standards is a matter for assessment based on evidence and analysis.

## State and territory and Commonwealth responsibilities

Many of the regulatory arrangements currently in place for the upstream petroleum sector stem from Australia's federal system of government, with powers shared between the Australian and state and territory governments.

Responsibility for Australia's offshore areas, beyond three nautical miles from the territorial sea baseline (referred to as 'coastal waters'), rests with the Australian Government, whereas onshore and as far as three nautical miles seaward of the baseline petroleum operations are the responsibility of the individual state and territory governments. The Australian Government shares joint regulatory authority with the relevant state or territory in the adjacent areas of Commonwealth waters.

Legislative arrangements for the sector are partly defined according to the distinction between onshore and offshore areas, and partly by jurisdiction. State and territory laws generally extend to the limit of their respective coastal waters. However, petroleum, pipeline and work health and safety regulation is different in coastal waters compared to state and territory internal waters and onshore.

State and territory governments have primary responsibility for regulating onshore mining and petroleum exploration and production in Australia, including CSG. Among other things, state and territory responsibilities include assessing the environmental impacts of exploration and mining, the granting of exploration approvals and mining leases, and setting conditions to ensure resources development is undertaken in a responsible and sustainable manner.

The Australian Government may become involved in the decision-making process if a mining extraction activity is likely to have significant impacts on matters of national environmental significance under the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act). Under the EPBC Act, matters of national environmental significance include listed threatened species and communities, listed migratory species, wetlands of international importance, nuclear actions, Commonwealth marine areas, World Heritage properties and National Heritage places.

CSG activities may also trigger the *Commonwealth Water Act 2007*, under section 255AA – Mitigation of Unintended Divisions, if the activity is a subsidence mining operation, occurs on a floodplain and has the potential to impact on Murray–Darling Basin system inflows. If preconditions trigger the provisions of section 255AA, an independent expert study must be undertaken to determine the impacts of the proposed mining operations on the connectivity of groundwater systems, surface water and groundwater flows and water quality, prior to licences being granted.

### Key regulatory issues

Regardless of the extent of CSG development across Australia, the key legal issues facing regulators, the industry and communities are similar in each jurisdiction. Australia's regulatory regime for CSG should consistently address common areas of concern relating to community, environmental and safety issues across all jurisdictions.

### Water management and monitoring

- Management and extraction of CSG water

- CSG exploration and production generates large volumes of formation waters from coal fractures. Such water is referred to as CSG associated water or simply CSG water.
- CSG water often has a high (but variable) saline content and may have other qualities that require management in order to minimise or prevent environmental harm.
- Evaporation and aggregation dams
  - Linked to the issue of CSG water management is the use of evaporation dams. In the past, it has been common practice to use evaporation ponds or dams as the primary means of disposal of CSG water.
  - Due to the significant footprint of evaporation dams and the environmental impact of such disposal, consideration is given to phasing out such dams for CSG.
- Impact on groundwater and aquifers
  - The impact of CSG extraction on other water users has been the subject of significant legislative responses in some jurisdictions.
  - The primary concerns are:
    - leakage of fresh water into coal measures resulting in water contamination (called inter-aquifer leakage), which can, in turn, cause subsequent aquifer interactions
    - impact on other users of boreholes and springs by reducing the amount of water available to (for example) water stock or to use for domestic purposes.

#### Well integrity

- Concerns associated with well integrity and health and safety are critical to the CSG industry and, in many ways, inextricably linked to the key issues described above.

#### Hydraulic fracturing and chemical use

- Concern about the use of chemicals during the hydraulic fracturing process (in particular the use of BTEX chemicals – benzene, toluene, ethylbenzene and xylene) has led to a high regulation of hydraulic fracturing activities and, in some States (such as Queensland and New South Wales), the restriction of BTEX during this process.

#### Other issues – land use

- Potential conflict with agricultural and strategic cropping uses
  - A balance must be struck between agricultural, mining and urban development in order to maintain the long-term viability of food and fibre industries while at the same time supporting economic growth for regional communities.



- Landholder rights and land access
  - As evidenced by groups such as 'Lock the Gate', there is considerable resistance to CSG proponents having access to private land in order to carry out exploration and production activities. Australian states and territories are endeavouring to address landholder concerns (while allowing reasonable and timely access to land for proponents) by developing a regulatory framework, land access codes of practice and strategic regional land use plans.
- Overlapping tenements
  - It is quite common for CSG tenements to overlap with coal tenements. As a result it has been necessary for some Australian jurisdictions to consider and regulate these directly competing resource developments to ensure the exploitation of the resource is maximised while fairly dealing with the interests of tenement holders. This has proven to be a difficult exercise, with the emphasis placed on reaching agreement between the tenement holders rather than intervention from government.

A robust regulatory regime needs to have adequate consideration for best practice regulation. While all jurisdictions may have generic legislation in place to enable the management of CSG, the extent and specificity to which jurisdictions address these key legal issues in their regulatory regimes will depend on their level of CSG development and be proportional to the issue being addressed.



## GLOSSARY

<b>annulus</b>	The space around a pipe in a well bore, the outer wall of which may be the wall of either the bore hole or the casing; sometimes termed the annular space
<b>aquifer recharge</b>	Process where a water source, such as recycled water, is used to recharge an aquifer with water under controlled conditions. In this process the aquifer is used to store surplus water for later use or for environmental benefit.
<b>aquiclude</b>	A low permeability unit that forms either the upper or lower boundary of a ground water flow
<b>aquitard</b>	A low permeability unit that can store ground water and also transmit it slowly from one aquifer to another
<b>as low as reasonably practicable (ALARP)</b>	This means that the operator has to show, through reasoned and supported arguments, that there are no other practical measures that could reasonably be taken to reduce risks further. The cost involved in reducing the risk further, could be grossly disproportionate to the benefit gained. In some cases a regulator will determine that ALARP is not sufficient and the project will not be allowed to proceed.
<b>baseline assessment</b>	An assessment of an existing water bore, surface waters and waterways, groundwater systems, springs and other potential groundwater-dependent ecosystems, to obtain information about the level and quality of water that may be affected by CSG activity, including the dewatering of coal seams. A baseline assessment is undertaken prior to the commencement of the activity.
<b>blowout preventer (BOP)</b>	Stops the uncontrolled release of drilling fluids and hydrocarbons from the well, in the event that a pressured zone is encountered, and is important for reducing work health and safety risks for the well crew.
<b>BTEX</b>	Refers to benzene, toluene, ethylbenzene and xylene. These compounds occur naturally in crude oil, natural gas and petroleum deposits.
<b>coal seam gas (CSG)</b>	A form of unconventional natural gas that occurs within the pores and fractures of coal seams.
<b>co-existence</b>	Principle that acknowledges and respects the rights of all land users and the potential of all regulated land uses, while ensuring that regulated land is not restricted to a sole use without considering the implications or consequences for other potential land uses, and the broader benefits to all Australians.
<b>co-produced water</b>	Water trapped in coal seams returned to the surface during the extraction of coal seam gas.

<b>desorbed</b>	The opposite of absorb, to release a substance through pores, small openings or spaces between objects
<b>dewatering</b>	Refers to the extraction of water from coal seams in order to reduce pressure and allow gas to flow to the well.
<b>drilling fluids</b>	Fluids used during the drilling of CSG wells to facilitate boring by reducing friction, stabilizing rock layers, clays and shales, and optimising drilling times.
<b>ecologically sustainable development (ESD)</b>	Using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased. The core objectives of ESD are to enhance individual and community wellbeing and welfare by following a path of economic development that safeguards the welfare of future generations; to provide for equity within and between generations; and to protect biological diversity and maintain essential ecological processes and life-support systems. Decision-making processes should effectively integrate both long- and short-term economic, environmental, social and equity considerations.
<b>environmental impact assessment (EIA)</b>	The process of identifying, predicting, evaluating and planning to mitigate the biophysical, social, and other relevant effects of development proposals prior to major decisions being taken and commitments made.
<b>environmental assessment (EA)/environmental impact report (EIR)</b>	Establishes an environmental baseline as a reference point for impact prediction and evaluation, and analyses interactions between the environment, the project and social impacts.
<b>environmental management plan (EMP)</b>	A project-specific plan developed to ensure that appropriate environmental management practices are followed.
<b>evaporation dam</b>	A means of disposal of CSG water through evaporation.
<b>flow-back</b>	A water-based solution that flows back to the surface during and after the completion of hydraulic fracturing.
<b>geological assessment</b>	Required to determine the environmental impact of hydraulic fracturing.
<b>geogenic material</b>	Contamination of naturally occurring elevated concentrations of certain elements, such as arsenic, fluoride, uranium or selenium, in groundwater which have a negative human health effect.
<b>good oilfield practice</b>	Concept which means all those things that are generally accepted as prudent and safe in carrying on petroleum and gas exploration and production.

<b>groundwater</b>	Water beneath the ground surface that fills up the tiny spaces between particles of soil, sand, gravel or rock formations.
<b>hierarchy of risk control measures</b>	Sequence of options that offers operators a number of ways to approach the hazard control process. A hierarchy of control ensures that risks are dealt with in an order of priority, where the most effective risk controls are addressed first, with less effective options considered thereafter.
<b>horizontal drilling</b>	Used to maximise the interface between the well and the gas bearing formations and reduce the 'drawdown' pressure in the well. Such techniques enable access to greater surface area in the reservoir and can reduce the need to fracture the formation to enable an adequate flow of gas to the well.
<b>hydraulic fracturing</b>	Process by which hydrocarbon bearing formations are 'stimulated' to enhance the flow of hydrocarbons to the well head. It involves the injection of fluid made up of water, sand and additives under high pressure through the perforated well casing into a geological formation from which hydrocarbons (oil, gas) are intended to be extracted.
<b>impact</b>	An unintended environmental, social or economic effect on the environment as a consequence of CSG operations.
<b>induced seismicity</b>	ground movement that may arise in some circumstances from, for example, water filling a dam and from fluid injection into the subsurface.
<b>leading practice</b>	Used in this report to describe the range of practices that are currently applied nationally and internationally that constitute the leading approach. Leading practices are different from best practices in that leading practices are leading at a point in time and the notion reinforces the need for continuous improvement.
<b>mini-frac</b>	Pre-hydraulic fracturing test used to inform the actual hydraulic fracturing process and identify whether the design may need to be adjusted for site-specific conditions. A mini-frac pre-hydraulic fracturing test uses a smaller volume of hydraulic fracturing fluid at lower pressures and less duration.
<b>multiple land use</b>	Where land is used for different purposes simultaneously, and sustainably, within an area, with a view to maximising the benefits for all Australians. The objective is to retain options for current and future use to maximise the net benefits of all forms of land use to present and future generations.
<b>proppant</b>	Used to hold open cracks in a formation so that energy has a pathway to access the well and is usually in the form of sand and chemical additives.
<b>sequential land use</b>	Involves using land first for one purpose, and then later for another purpose, once the first land use has ended or been terminated. The

sequential land use may be a reinstatement of the former land use or development of an alternative land use.

<b>toxicology assessments</b>	Analysis of the cumulative effects of chemical mixtures and assessments of individual substances.
<b>verification</b>	Certification undertaken by a qualified professional to assess whether relevant modelling, plans, construction, deployment, or other requirements are fit for purpose, and meet work health and safety and environmental objectives.
<b>virtual reinjection</b>	This is water provided to water users as a substitute for aquifer extractions intended to alleviate pressure on water resources.
<b>viscosifier</b>	Substance added to a fluid to change the thickness or resistance of the fluid.
<b>well decommissioning</b>	A process that involves shutting down a well and rehabilitating the site. This is necessary when the economic limit of the well is reached, and entails protection of groundwater resources and isolation of the productive formations from other formations with pressure-tested cement, placing a surface cement plug in the top of the casing, and removing surface equipment including the well head.
<b>well integrity</b>	Describes the application of technical, operational and organisational solutions to the construction, operation and decommissioning of CSG wells so that the uncontrolled release of fluids, solids and gases into the subsurface or surface environment can be prevented over the full life cycle of the well.



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Premier of Queensland  
 100 George Street,  
 Brisbane  
 PO Box 15185 City East  
 Queensland 4002  
 Australia.

Dear Mr Newman,

Thank you for your letter of 7 November 2012. I wish to commend you on your commitment to openness and transparency in Government.

I have received three samples from the Tara region which were tested by HSSA. Thank you. The range of gases tested for within these samples was quite limited. You say there has been ongoing testing and sampling has been occurring on a regular basis. I would appreciate if you could forward to me the results of all tests undertaken by government agencies in the Wieambilla estates and Kogan/ Montrose Region since the beginning of this year. Specifically I would like to request the results of air, water and soil sampling on the property of Brian Monk

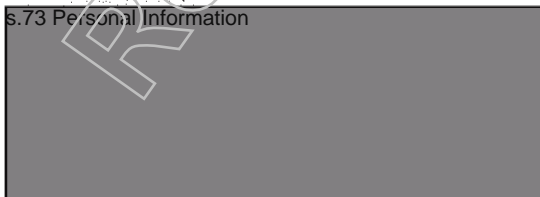
In your letter you state that Queensland Gas Company (QGC) consultants have been involved in ongoing air, soil and water testing in the Tara area. I am led to believe that these tests are to form the basis of the pending health report by the Queensland Government. A number of Wieambilla residents have already received their reports from QGC and I regret to say that they are incomplete. In particular the air sample analysis is lacking. There was no indication of what the detection limits were (all the PQL's were missing) and the results were all reported as <something.> (a wide range of random numbers)

I would like to formally request the full data for air, water and soil sampling with PQL's and precise readings recorded by SGS/ Leader consulting on behalf of QGC at Upper Humbug Road, Blackburns Road, Lucky Road, Happiness Road, Robbos Road (x2), Wieambilla Road, Old Tara Road and Daybreak Road.

In view of the ongoing health complaints I believe this is a matter of significant concern. I would appreciate your early reply.

Yours sincerely,

s.73 Personal Information



8<sup>th</sup> December 2012.

**Sarah Partosh**

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**From:** s.73 Personal Information [redacted]@gmail.com>  
**Sent:** Saturday, 8 December 2012 1:55 PM  
**To:** The Premier  
**Subject:** Coal Seam Gas testing

Premier of Queensland  
100 George Street,  
Brisbane  
PO Box 15185 City East  
Queensland 4002  
Australia.

Dear Mr Newman,

Thank you for your letter of 7 November 2012. I wish to commend you on your commitment to openness and transparency in Government.

I have received three samples from the Tara region which were tested by HSSA. Thank you. The range of gases tested for within these samples was quite limited. You say there has been ongoing testing and sampling has been occurring on a regular basis. I would appreciate if you could forward to me the results of all tests undertaken by government agencies in the Wieambilla estates and Kogan/ Montrose Region since the beginning of this year. Specifically I would like to request the results of air, water and soil sampling on the property of Brian Monk

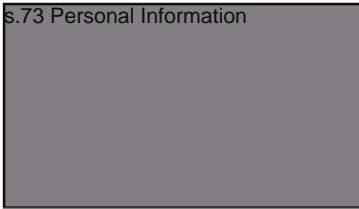
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In view of the ongoing health complaints I believe this is a matter of significant concern. I would appreciate your early reply.

Yours sincerely,



8<sup>th</sup> December 2012.

Released under RTI - DPC

**Sarah Partosh**

---

**From:** s.73 Personal Information [redacted]@gmail.com>  
**Sent:** Tuesday, 11 December 2012 7:45 AM  
**To:** Hon Lawrence Springborg; The Premier  
**Cc:** WDA; [redacted]  
**Subject:** Please respond urgently!

Dear Premier Campbell Newman & The Hon Lawrence Springborg,

My name is [redacted] and my Family and I own a property in the Surat Basin [redacted] [redacted] in the developing gas field for Coal Seam Gas. We have lived her since [redacted] We are being harmed by the industry that is trespassing onto our human rights. Before the industry approached us we had no health complaints at all. Now we are struggling everyday with the constant ailments that plague us, because of Coal Seam Gas. I have constantly called the 13 HEALTH number and presented my case to them. I am in contact with [redacted] the doctor in charge of our case with 13 HEALTH and she has asked me not to ring anymore because they know about our health complaints with the CSG activity. Numerous trips to the doctors and hospital, but our symptoms don't fit the diagnosis. I have sent you both plenty of emails and you tube footage of what we are dealing with in the gas feild. We have no gas wells or ponds on our property. We have a stock and domestic water bore that has been investigated by the LNG Enforcement Unit many times with no answers. We have highly reliable and fully calibrated gas metres (the same metres that the CSG industry use). This industry can not continue safely. When are you going to take action? Why are you allowing the harm to the communities and us by the coal seam gas industry? Please, I invite you to come out and stay on our property, even for a very short time, so we can show you what we are having to live with.

Thank you for you time  
[redacted]



Email: [Redacted]@bigpond.com

Phone [Redacted]

1<sup>st</sup> January,, 2013

Hon Campbell Newman MP

Premier

PO Box 15185

City East  
Queensland 4002

Your Ref: ERP/EL – TF/12/26732 –DOC/12/193832

Dear Mr. Newman,

**Coal Seam Gas Mining in Queensland (Fracking)**

Thank you for your letter dated 31st October 2012. I greatly appreciate your response. I apologize for the delay in my response.

I must strongly disagree with you on the statement in your last paragraph, which partly states "While no causal link has been established", (i.e. between CSG (Fracking) and human health.)

**Your statement is absolutely terribly wrong**

There is much information around, within Australia, and the USA, that fracking poses considerable health risks to humans, poisoning both water systems and the atmosphere. Many chemicals (some of them which are toxic) are in the water, which is pumped under pressure into the fracking wells; the wells may be fracked up to 20 times, thus increasing the risk of fracturing the rock strata, above, below and within the aquifers. This leads to toxic chemicals leaching into the underground water system. Methane can also escape this way. It has been shown that carcinogens, locked in

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the strata can be released and move into the water reserves posing even greater risk to human and animal health.

Fracking is not only making people ill, in some cases seriously ill and even deaths; it is also ruining good agricultural land, and the natural environment through poisoning water supplies and the atmosphere. Its toxic effects are numerous, and documented. Moreover, the gas produced (Methane) is exported to overseas destinations. If there are any benefits, they are the profits for the Mining Companies, and income for the Government. The majority of Australians receive no benefits from Fracking, only heartache, worry and illness where Fracking occurs.

In addition, methane is in volume to volume (up to 20X) a stronger contributor to Global Warming than Carbon Dioxide, and there is already evidence that methane escapes during fracking, both into the atmosphere and into the drainage system around Fracking wells. (An informative part of the 7.30 Report, ABC TV, aired on 14<sup>th</sup> November, 2012 revealed higher amounts of methane in the atmosphere near to Fracking areas than in areas distant to the wells.)

In addition, recent University research has shown that the levels of methane in the atmosphere are much higher in places around CSG Mining areas than in areas away from them. Leakage of methane occurs from the wells themselves, and from the huge network of pipes carrying the gas from the wells to the ports or other distribution centers.

I firmly believe that the Government's authorities responsible for monitoring the Mining Companies activities both in Fracking, and coal mining generally are anywhere near as strict as they should be, and have insufficient legal muscle to ensure that the Companies are behaving in a truly responsible and honest way in ensuring the health and safety of Australians, and the natural environment. Their prime motives are profits for their companies, and income for their shareholders.

You should feel ashamed or guilty for allowing such detrimental activity to be carried out by the Mining Companies many of which are riding roughshod over Landowners rights!!

When push comes to shove, do you put Mining profits and income for the Government above Australians' health and welfare?



To my mind, health should always take precedence over profits: do you agree??

Why is Fracking banned in France, Bulgaria, and certain jurisdictions in the USA e.g. Vermont?

Just as an aside, I refer to your announcement that Uranium mining is going to be allowed in Queensland. There is no safe way to dispose of waste (Depleted Uranium). In the USA, the Military dispose of Depleted Uranium by using it in ammunition and the armor plating of military vehicles. USA Military carry out military War games in Australia, but the use of depleted Uranium has not, to my knowledge, been banned in Australia, whereas other countries have banned it.

Your Government should be seriously considering your policies on mining practices, and make use of unemployed mining employees to manufacture products in Australia which will help in the fight against Global Warming, not add to it by digging out fossil fuels and dangerous elements out of the earth, burning them or exporting them so that they can add to the problem of Global Warming.

There are presently dire warnings from the Scientists studying Global Warming that the rate of temperature increase worldwide is greater than previously stated. Unfortunately, Australia is a large contributor to Global Warming, but most politicians, and I believe you are included, are not doing nearly enough to ensure a quicker change over to energy production, which does not rely on fossil fuels. This includes coal, gas from coal and oil.

Melbourne University this year released a report that Australia can have 100% clean, renewable energy within 10 years. I strongly recommend you read it.

**WHY** is Australia exporting gas and coal to countries that have plentiful reserves of coal?? E.g. China and India. They must be laughing at us: using our minerals to pollute our atmosphere while extracting the products, and then using them while avoiding the trouble of getting them out of the earth.

Below I attach a list of some of the reasons why Fracking should be banned.

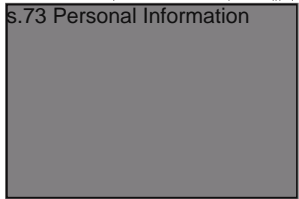
Please take my concerns seriously and your decision needs to be in

the best interests of not just Queenslanders, but all Australians and the environment.

This letter may be sent to other members of your Government, and other Politicians, and media outlets.

Yours sincerely,

s.73 Personal Information



#### References:-

- i) Richland, Wasteland: How Coal is Killing Australia, by Sharyn Munroe, Published 1<sup>st</sup> May 2012 by Macmillan ISBN: 978-1-7426-1099-3
- ii) Film "Gasland" Directed by Josh Fox (2010).  
A documentary about Coal Seam Gas mining in the USA

### **WHY FRACKING SHOULD BE BANNED**

- 1 Toxic chemicals in water are forced into the rock strata under pressure.
- 2 Fracking creates fissures in the rock strata, thus enabling leakage into surrounding areas, including underground aquifers.
- 3 Each well can be fracked many times, thus compounding the problem listed above.
- 4 **Carcinogens** locked in the strata are released into the ground water and can move into water supplies together with the other toxic chemicals.
- 5 Mining companies are allowed to use huge quantities of water for fracking, which can deplete water supplies to surrounding areas. Farmers and landowners are restricted by licenses in the amount of water they can use.
- 6 The gas produced by fracking (Methane) is exported, and not available to Australian consumers.
- 7 There are **sufficient reserves of undersea gas to keep Australia supplied for its needs indefinitely.**

- 8 Highly saline polluted water from fracking has to be stored in lakes or dams. **There is no safe way of disposing this product.**
- 9 Farmers are losing valuable agricultural land where fracking is in progress, thus leading to loss in food security.
- 10 Land values of properties adjoining properties where fracking occurs are **automatically decreased**. Real Estate Agents will not attempt to sell land with gas wells on it or next door
- 11 Some landowners are obliged to sell to the mine owners at a devalued price.
- 12 The natural flora and fauna are disturbed and forced away from areas where fracking occurs.
- 13 Experts preparing Environmental Impact Statements for Mining Companies do not reveal the true impacts of Fracking **as the same Companies employ them**, so their statements are skewed in favor of the Companies.
- 14 Scientists have proven fracking causes earthquakes
- 15 Doctors for the Environment Australia have called for the banning of fracking due to the evidence of the damaging health impacts upon humans. (Refer especially to the Gasfields in the Tara area of Queensland).

**Sarah Partosh**

---

**From:** The Premier  
**Sent:** Thursday, 17 January 2013 5:57 PM  
**To:** The Premier  
**Subject:** Coal Seam Gas

**Importance:** High

Subject: Coal Seam Gas

Title: Mr

First Name: [Redacted]

Family Name: [Redacted]

Email: [Redacted].net.au

Address: [Redacted]

Town: [Redacted]

State: [Redacted]

Postcode: [Redacted]

Email: [Redacted].net.au

Comment:

Dear Premier Newman

I read with disbelief an article in our local paper that the Maryborough/Hervey Bay/Burrum Heads area are earmarked for Coal Seam gas exploration. Surely this is a joke after all this is a densely populated area with clean air and a great place to live. The adverse health effects that are experienced in the Dalby area due to drilling must be considered when granting permits.

Would permits be granted in the greater Brisbane CBD for this type of activity?

Surely there must be some way that this can be averted.

I believe that this is only occurring in areas where there is a road and rail infrastructure, so that AGL and the likes do not have to cough up for the building of same.

Released under RTI - DPC



DATE: 18. 1. 13

Mrs.

s.73 Personal Information

The Premier,  
Mr Campbell Newman,  
Parliament House  
Brisbane.

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Dear Mr. Newman,

I am an Aboriginal woman of the [redacted] in Queensland.

[redacted] has done a deal with ~~and~~ ~~some~~ companies like Old Gas. I was OK with it in the beginning till I learned the dangers of 'fracking' where water contamination can occur causing gas flames to appear from water taps in homes. Therefore, I no longer want royalties from such an insidious, untrustworthy project that endangers health & lives. I have distanced myself from such involvement.

However, another potential harm (to our marine life <sup>is being</sup>) is hovering in the form of the proposed building of a port at Abbott Point in the area of the beautiful reef. Even if it were not near the reef, I would still condemn the building of a port which will endanger marine life anywhere on the Australian coastline.

Think of your grandchildren. Don't you want them to have pristine waters to scuba dive in, healthy sustainable marine life to enjoy? Please don't build the Abbott Point port. Ralph Waldo Emerson said man's pollution would be the undoing of us all.

Yours sincerely,  
[redacted]

**Sarah Partosh**

---

**From:** The Premier  
**Sent:** Thursday, 24 January 2013 7:53 AM  
**To:** The Premier  
**Subject:** Coal Seam Gas

**Importance:** High

**Subject:** Coal Seam Gas  
**Title:** mr  
**First Name:** s.73 Personal Information  
**Family Name:** [Redacted]  
**Email:** [Redacted]@gmail.com

-----  
**Address:** [Redacted]  
**Town:** [Redacted]  
**State:** [Redacted]  
**Postcode:** [Redacted]  
**Email:** [Redacted]@gmail.com  
-----

**Comment:**

Why,when so many children are becoming sick,developing lesions and neurological problems do you do nothing about it.why ,when the Condermine River is bubbling methane and bore water is unfit to drink.You Mr. Premier do nothing about the C S G industries total disregard for the people of QLD

Released under RTI - DPC

**Sarah Partosh**

---

**From:** s.73 Personal Information [REDACTED]@gmail.com>  
**Sent:** Friday, 1 February 2013 12:54 PM  
**To:** The Premier [REDACTED]  
**Subject:** Notice of HARM

To the Premier, his Cabinet members, the LNP party sitting members, all government departments, all public officers, all contractors to the government. I place you on Notice of HARM, LOSS and INJURY.

For your collective and individual actions supporting the Coal Seam Gas operations, you are now being put on notice of issues that could leave you open to having charges laid against you under the criminal code or in the civil courts, Tort law, the Civil liabilities act . Natural and probable consequences, Malice, Damage to property, Duty to do certain acts, Persons in charge of dangerous things, The United nations Rights of the Child, Queensland Child protection act : Chapter 2 part 1 Article 36 Other forms of exploitation, and many other acts or state or federal laws, as well as common LAW . You have now been put on notice that your actions, or your part played in the exploration and production activities of coal seam gas, that could lead to injury , death , economic loss or pollution to land, sea, ground water , under ground water , air , streams , rivers and lakes . You have now been put on notice and as such now become liable under law if you fail in your DUTY OF CARE IN THESE MATTERS . You have been put on notice .

In particular on this occasion I would like to inform you, the farce of a health impacts study is flawed at so any levels which I will list below, but the list in no way is limited to just the following.

1. Can the Premier direct his health minister to supply me with the list of biological tests (not names so as to identify people, just the tests) done on the victims of this Governments support of the CSG industry. Surly it would be expected that a full medical range of biological testing would be done on people presenting with symptoms that have clearly been identified as Gas Field related world wide. I know of no such testing. Can the Premier explain to me how anything done by the Minister or the Premiers assured the imediate safety of effected families. Can the Premier in absence of any testing explain why he did not in fact direct the Health Minister to commence a full screen of testing in light of the vocal, written and media complaints of such health impacts.
2. Can the Premier please confirm that the Minister for Heath stated to the media he set up a hot line for health concerns, this is certainly at best a half truth because the hotline was already in operation and they were unaware of any direction to collect data when people first began to ring in. Surly the Minister was trying to mislead the people of Queensland and Australia with this statement, is that the sign of an officer and a gentleman? And please ask the Minister to explain to me how it was more appropriate to set up a survey as against offering people biological testing to rule out impact from CSG activities, or as I'm sure you and the Minister are aware, identify the impacts to be CSG related.
3. Can the Premier please ask the Health Minister if his department was aware of the simple testing procedures available to the Health Practitioners to begin collecting data that might indicate gas related illnesses. If the knowledge was there, why was it not used? If the knowledge was not there then there are serious deficits in the Health Service that may well need immediate investigation and rectification.
4. Can the Premier ask the Minister for Health if he ordered a Health Impact study to be done on testing gathered by QGC contractor, then a report to be completed not BY but FOR the Health Department by a QGC contractor. This is a vital point and should this Report ever be released then it would place the Governments entire lack of Duty of Care in plain sight for all to see. It would also place at serious risk families who your Government Ministers have already unjustly marginalized with comments like "drinking dam water""the shrill out there""only 2 people have presented with health impacts", Howard Hobbs tells his

electorate"they have only complained to Alan Jones". The emotional health of people out here has been savagely effected by your Governments failure to follow any form of medical testing, this report may well be more than most humans could take, so be very aware, you will place many at risk of harm if you release this bogus report. Expect to explain your rationale in court.

<https://www.youtube.com/watch?v=03O2siJD86A>

Maybe he can explain this and my elevated levels, actually chemicals I didnt even know to existed till now, please explain how company tests show nothing of concern and test results show much of concern?

<http://www.news.com.au/national/testing-times-ahead-for-residents-of-tara-after-boy-found-with-hippuric-acid-in-system/story-fndo4ckr-1226548149258>

5. Can the Premier ask his ministers to furnish me with the report of them testing for Radium 236, Radon, and other radioactive substances in the ponds that so clearly evaporate over all around. Can the reports showing a full analysis of the water be also provided, these ponds as well as the leaking gas from the ground, through rivers and from well heads would all seem to be a source of possible health impacts. Has the Government made any attempt to do scientific studies and collect data on any of these. This link clearly shows product water has great potential to be radio active.

<http://neworleans.indymedia.org/news/2010/06/15125.php>

This link quite clearly indicates gas is leaking through the ground.

<https://www.youtube.com/watch?v=7ceYRMMhbDg>

More on radioactivity

<http://www.evs.anl.gov/pub/doc/Radium.pdf>

Worker injury, but remember they all get to go home and get paid for what your government is allowing to happen to innocent people.

<http://www.youtube.com/watch?v=eHoHft6Mqno>

So, for my own family, explain this please.

<http://www.youtube.com/watch?v=Hc5SEbp-GSw>

The country is waking up Premier, maybe it is time for your Government to extract its head out of the CSG industries arse and do what is your duty of care.

Obviously there are thousand of research articles out there, these are a few, what they clearly identify is Your Government is clearly failing in its duty of care.

<http://thinkprogress.org/climate/2013/01/17/1465111/study-links-oil-and-gas-extraction-to-ozone-chemicals/?mobile=nc>

6. Now one of the interesting things about this experience I have had with the Government and the CSG industry is it has placed me in contact with genuine scientists who all tell me, the Government failed to follow any scientific process, so, with that in mind, again I ask, on what medical grounds did your Minister for Health base his actions. It seems to me that there are none, there are medical tests, genuine biological testing, but to my knowledge there were none done. There are scientific approaches to testing air, water and soil, but none were followed, not even by the company. I would demand an explanation as to why the Minister for Health under your direction did not follow basic medical strategies when investigating the health impacts. WHY WHY WHY???

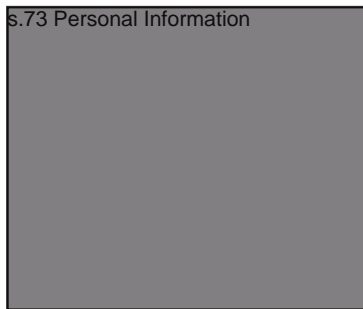
I look forward to a genuine reply, as always will will circulate this notice widely, as I will circulate your reply, many will be keen to understand your actions in this matter. I will be very keen to gather an insight into the Premier's, the Minister's and the Governments actions as they make not one ounce of sense to me at present, other than to confirm a feeling that all is not well in the Newman Government.and its Departments.

I look forward to a far more timely response as people's well being is at risk, several months in response time and not addressing the issues raised in my opinion only places all those listed above in the notice at



more risk of creating harm, please take note of this and act accordingly.

s.73 Personal Information

A large rectangular area of the document is redacted with a solid grey fill, obscuring the underlying text.

Released under RTI - DPC



Hon Andrew Cripps MP  
Minister for Natural Resources and Mines

CLLO/CIC/12135

7 FEB 2013

The Honourable Campbell Newman MP  
Premier of Queensland  
PO Box 15185  
CITY EAST QLD 4002

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Level 17 QMEC Building  
61 Mary Street Brisbane Qld 4000  
PO Box 15216 City East  
Queensland 4002 Australia  
Telephone +61 7 3225 1861  
Facsimile +61 7 3224 2491  
Email nrm@ministerial.qld.gov.au

Dear Premier

I am writing to seek your views and agreement on the proposed way forward for the underground coal gasification (UCG) trial.

On 30 November 2012, the Independent Scientific Panel (ISP) for UCG provided its final report on the UCG pilot trials in Queensland. A copy of the final report has been attached for your reference. The report outlines the ISP's view that UCG could, in principle, be conducted in a manner that is socially acceptable and environmentally safe when compared with a wide range of other existing resource-using activities. However, the ISP is not confident that the work to date on pilot trials in Queensland has demonstrated that UCG can be conducted, in practice, in a manner that is socially acceptable and environmentally safe.

Critically, the ISP has formed the view that the pilot trial has not gathered sufficient scientific and technical information to demonstrate that the "self-cleaning cavity" approach to decommissioning is environmentally safe and sustainable. The intent of the "self-cleaning cavity" approach is to manage contaminants generated as a by-product of the UCG process in the cavity(ies) created by the trial. A successful "self-cleaning cavity" should result in a clean, non-polluting cavity and surrounding underground environment. The Department of Natural Resources and Mines has been unable to source any reliable information from overseas UCG trials of sampling these cavities.

In order to demonstrate that the "self-cleaning cavity" technology is appropriately well designed, the ISP has identified that further work is required. This work would include accessing and sampling a gasified cavity to identify the current contents and surrounding materials, as well as gathering information on the condition of groundwater surrounding the cavity before and after decommissioning. If the UCG proponents are unable to demonstrate the success of the "self-cleaning cavity" approach, the likely outcome will be a legacy of a cavity from which there will be an ongoing generation and release of contaminants to groundwaters. This has potential to impact on water accessed for stock and grazing purposes.

The ISP also identifies that little or no information has been provided in relation to site rehabilitation specific to the Queensland UCG context. I am advised that the ability to rehabilitate the trial sites is entirely dependent on a successful decommissioning process, without which industry will not be able to achieve an environment that is safe to humans and wildlife, stable, and able to sustain an agreed post-disturbance land use.

To address this shortfall of data, the ISP has made three overarching recommendations:

1. The ISP recommends that the Queensland Government permit Carbon Energy and Linc Energy to continue the current pilot trials with the sole, focused aim of examining, in a comprehensive manner, the assertion that the self-cleaning cavity approach advocated for decommissioning is environmentally safe.
2. The ISP recommends that a fixed, strictly limited time period of six months be allowed for the companies to undertake the necessary research and reporting on existing cavities that are not currently being gasified. It is the opinion of the ISP that, if sufficient access to existing cavities cannot be achieved in that time, the design of the gasifiers is not sufficiently robust to conclude that the underground coal gasification process is socially acceptable and environmentally safe. In three months, each company must produce a detailed plan as to how and when the gasifiers that are currently producing gas will be decommissioned. These gasifiers are necessary for demonstration because none of the existing cavities represents a completed (or even near completed) full sized cavity.
3. The ISP recommends that, until decommissioning is demonstrated to be environmentally safe, no commercial facility be commenced. An exception to this would be if a proponent were to suggest very deep gasification where the consequences of a less-than-perfect decommissioning may, under certain conditions, be socially and environmentally acceptable.

Subject to your approval, it is envisaged that the government will implement the overarching recommendations in the ISP report. This would allow for the extension of the pilot trial period for a proposed six months, with the sole, focused aim of examining in a comprehensive manner the assertion that the approach advocated for decommissioning is environmentally safe and sustainable. A detailed plan will also be required to be produced by the UCG companies, within three months of the commencement of this trial, to advise the government how and when the remaining producing gasifiers will be decommissioned.

Exempt Sch.3(2)(1)(b) Reveal Cabinet consideration

Clear criteria for the proponents to demonstrate that the clean cavity approach can be achieved will be developed in conjunction with the Department of Science, Information Technology, Innovation and the Arts, and the Department of Environment and Heritage Protection. These discussions will also involve the proponents, to ensure that they are involved in the design of the criteria and are fully aware of what will be required of them. Ongoing monitoring and assessment will be required throughout the proposed trial extension, and the data received, in conjunction with the ISP report itself, will be used to inform the government's final decision on the future of UCG in Queensland.

I note that specific Recommendation 5 of the ISP Report also relates to the activities of the trial projects. This recommendation states that the companies should immediately propose, test and establish acceptable and agreed processes and outcomes for rehabilitation. It is anticipated that the proponents will be required to propose processes and outcomes for rehabilitation of the trial sites as part of the detailed plans that will be required from them three months after the trial commences. These processes and outcomes will be assessed by the relevant government departments to ensure they are satisfactory.

As you would be aware, the department's Safety and Health Petroleum and Gas Inspectorate has been working with Linc Energy to address safety issues and leakage from one of its gasifiers. The Department of Environment and Heritage Protection has also raised concerns regarding environmental matters at the Linc site in relation to the presence of dioxins and other contaminants at significant levels in one of the dams. These contaminants are by-products of the UCG process and have the potential to impact both the environment and human health through possible contamination of groundwater, the surrounding landscape and air.





# **INDEPENDENT SCIENTIFIC PANEL REPORT ON UNDERGROUND COAL GASIFICATION PILOT TRIALS**

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*November 2012*

*Queensland Independent Scientific Panel for Underground Coal Gasification (ISP)*

Professor Chris Moran, Director, Sustainable Minerals Institute, The University of Queensland.

Professor Joe da Costa, School of Chemical Engineering, The University of Queensland.

Em. Professor Chris Cuff, C&R Consulting, Townsville Queensland.

Released under RTI - DPC

# Acknowledgements

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The Independent Scientific Panel (ISP) has worked on a part-time basis to provide advice to government on the underground coal gasification (UCG) trials currently underway in Queensland. The ISP has worked with a number of government departments and the two companies, Linc Energy and Carbon Energy, to assess company data and reports and to design a process for reporting the essential outcomes of the investigations of the companies without breaching their confidentiality.

The members of the ISP would like to express their gratitude to the government officers who assisted at various stages throughout the process. They would also like to thank staff of Carbon Energy and Linc Energy who approached the reporting process with a positive attitude. At various times, the ISP, government officials and company members have been challenged with changing external context, e.g., environmental evaluation, changing staffing in government and companies and a state election.

The reports produced by Linc Energy and Carbon Energy are amongst the most thorough compilations of information on any UCG pilot trials to date. A great deal of useful information and lessons are incorporated into the reports. It is not possible to do justice to the quantity of technical information provided by each of the companies in a summary set of recommendations. No doubt, over time, the companies will see fit to release at least some of this technical information into the public domain so that others are able to make their own assessments of the merits and risks associated with UCG.

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# Executive Summary

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Underground coal gasification (UCG) is a technology that has been in use in various forms for many decades. To date, proponents have failed to convince governments of the environmental safety and social acceptability of the process to permit its large-scale implementation. The Queensland government approved three UCG trial sites over a period of years with a view to making their own assessment. The Independent Scientific Panel (ISP) was established to assist government with these assessments. The main roles of the panel were to apply individual and collective expertise to analyse, assess and evaluate various technical and environmental factors and to report the outcomes of the trial activities including recommendations on the prospects and future management of UCG in Queensland.

Queensland is possibly currently leading the world in UCG technology development and testing. The Queensland government needs to come to a conclusion regarding UCG in the context of its broader energy policy in the medium and longer terms. A great deal of coal that is economically inaccessible to mining (too deep or poor quality) and from which coal seam gas will have been extracted could potentially be a source of syngas in the future.

The two companies that have provided pilot trial reports that are the subject of this assessment are Linc Energy and Carbon Energy. Both companies have converged on a variation of the controlled retracting injection point (CRIP) technology. The reporting process was designed around the combination of the operational life cycle (site selection -> commissioning -> operation -> decommissioning -> rehabilitation) and a conventional process industry risk assessment. Both companies have attempted to bring together their extensive technical data bases, which have been gathered from experience of a number of gasifiers with evolving technologies. The integration of technical data into the risk assessment was at a standard below what the ISP expected.

Both companies have learned a considerable amount about how to commission and operate a gasifier. Neither company has convincingly demonstrated that their proposed approach to decommissioning, i.e., the self-cleaning cavity, is effective. The ISP remains open to the possibility that the concept is feasible. However insufficient scientific/technical information has been provided to come to a final conclusion. Some important work has been undertaken but a great deal more is yet to be done. For example, neither company has gained access to a gasified cavity, sampled it and provided information on the current contents and condition of surrounding materials.

Significantly, no company has yet completed a burn of sufficient duration to create a final cavity of the dimensions that are expected under a commercial process. Until this is done it is not possible to come to a final conclusion regarding the technology. Given this situation, the ISP does not accept that scale up to commercial UCG should be undertaken. However, given the considerable investment by the companies and Queensland government to date, and the undoubted future importance of UCG as a viable energy source of global significance, the ISP is of the view that the gasifiers currently operating should be permitted to continue until a cavity of significant dimensions is available for full and comprehensive demonstration. At that time, commercial scale UCG facilities could be considered. There is much work to be done on the design and environmental and operational safety for multi-panel operations.

Given the pilot project reports presented, the ISP has come to three overarching recommendations and eight (8) specific recommendations. The latter are not reproduced in this summary but cover each of the life cycle stages (5), the interaction between CSG and UCG (1) (recommendation is that UCG must be responsible for key operating parameters such as coal seam hydraulic pressure), governance (1) and the question of commercial multi-panel operations (1) (recommendation is that no commercial operation should commence at this time).

Following consideration of the materials made available to the ISP from companies and in the public domain, the ISP has come to the following overall conclusions.

- Underground coal gasification could, *in principle*, be conducted in a manner that is acceptable socially and environmentally safe when compared to a wide range of other existing resource-using activities.
- The ISP is not confident that the work to date on pilot trials in Queensland has demonstrated that UCG can be conducted, *in practice*, in a manner that is socially and environmentally safe.

Consequently, the ISP makes the following three (3) overarching recommendations.

*Overarching recommendation 1.*

*The ISP recommends that the Queensland government permit Carbon Energy and Linc Energy to continue the current pilot trials with the sole, focused aim of examining in a comprehensive manner the assertion that the self-cleaning cavity approach advocated for decommissioning is environmentally safe.*

*Overarching recommendation 2.*

*The ISP recommends that a fixed, strictly limited time period of six (6) months be allowed for*



*the companies to undertake the necessary research and reporting on existing cavities that are not currently being gasified. It is the opinion of the ISP that if sufficient access to existing cavities cannot be achieved in that time, then the design of the gasifiers is not sufficiently robust to conclude that the UCG process is socially acceptable and environmentally safe. In three (3) months each company must produce a detailed plan as to how and when the gasifiers that are currently producing gas will be decommissioned. These gasifiers are necessary for demonstration because none of the existing cavities represents a completed (or even near completed) full sized cavity.*

*Overarching recommendation 3.*

*The ISP recommends that until decommissioning is demonstrated to be environmentally safe, no commercial facility should be commenced. An exception to this would be if a proponent were to suggest very deep gasification where the consequences of a less than perfect decommissioning may, under certain conditions, be socially and environmentally acceptable.*

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## Table of Contents

<b>1</b>	<b>PREAMBLE</b> .....	<b>7</b>
<b>2</b>	<b>OVERARCHING RECOMMENDATIONS</b> .....	<b>11</b>
<b>3</b>	<b>UNDERGROUND COAL GASIFICATION (UCG) – SOME CONTEXT</b> .....	<b>12</b>
<b>4</b>	<b>COMPANY REPORTING</b> .....	<b>13</b>
<b>5</b>	<b>ASSESSMENT OF UNDERGROUND COAL GASIFICATION INDUSTRY AND QUEENSLAND PILOT TRIALS</b> .....	<b>15</b>
5.1	LIFECYCLE OF AN UNDERGROUND COAL GASIFICATION PLANT.....	15
5.2	SITE SELECTION.....	15
5.3	COMMISSIONING.....	19
5.4	PRODUCTION.....	21
5.4.1	<i>Assessment of levels of protection</i> .....	23
5.4.1.1	Site Characterisation.....	23
5.4.1.2	Process Design.....	24
5.4.1.3	Process Control, Critical Alarms, Safety Systems and Pressure Relief Systems.....	29
5.4.1.4	Physical Protection Systems.....	32
5.4.1.5	Plant and community emergency response.....	33
5.4.2	<i>Other operating modes – Temporary Shutdown and Re-Start</i> .....	33
5.5	DECOMMISSIONING.....	34
5.5.1	<i>Panel/Cavity Information and Unidentified Risks</i> .....	37
5.5.2	<i>Cool activation and pollutant adsorption</i> .....	40
5.6	REHABILITATION.....	42
<b>6</b>	<b>COAL SEAM GAS AND UNDERGROUND COAL GASIFICATION</b> .....	<b>43</b>
<b>7</b>	<b>REGULATORY ENVIRONMENT</b> .....	<b>45</b>
7.1	OBSERVATIONS ON POLICY AND GOVERNANCE.....	45
<b>8</b>	<b>INDUSTRY SCALE-UP (MULTI-PANEL OPERATIONS)</b> .....	<b>48</b>
<b>9</b>	<b>LIST OF RECOMMENDATIONS</b> .....	<b>50</b>
9.1	OVERARCHING RECOMMENDATIONS.....	50
9.2	SPECIFIC RECOMMENDATIONS.....	50

## 1 Preamble

The Terms of Reference for the Scientific Expert Panel, Underground Coal Gasification Policy Implementation were defined in Version 1.4 of September 2010. This document stated (*inter alia*) that "While the Report will consider the benefits and costs of a potential UCG industry in relation to its environmental, social and commercial impacts, the panel will focus on the technical and environmental aspects of the UCG technology."

The Independent Scientific Panel (ISP) has examined the materials from the two pilot projects in the light of background information from international experiences. The information used on the two pilot projects included:

- Final summary reports and associated appendices;
- Company performance during the environmental evaluation process; and
- Company interactions during the ISP process development and carriage.

In this report the ISP takes the view that the UCG trials on which it has received information are *pilot trials*. This is distinguished from the term *demonstration trials* in that the latter would imply that the technology for all phases of the life cycle is well understood and that the single cavity/panel<sup>1</sup> trials are to demonstrate the scale-up for commercial UCG facilities. The ISP does not accept that the information supplied, the manner in which it has been supplied and the overall design of the pilot underground facilities warrants assessment as demonstration trials. As such, it is important that as many lessons as possible are drawn from the pilot trials to allow the companies the opportunity for future demonstrations to provide confidence, that an environmentally safe and socially acceptable process can be established that is economically viable.

In keeping with the individual confidentially agreements signed by each member of the ISP with the companies, this report does not necessarily include technical information and data. The technical supporting evidence for the recommendations made has been obtained from detailed consideration of the technical material provided.

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<sup>1</sup> Throughout this report the terms "panel" and "cavity" are used to refer to the underground void created by UCG. It is recognized that a panel refers to a specific design and a cavity is a more general term. Attempts have been made to use the term panel when reference requires implied information about the design and therefore some likely features of the cavity. Otherwise the term cavity has been used. The ISP recognizes that this may be an imperfect separation of the terms and their use.

The ISP has taken a life cycle approach to its considerations. The life cycle for UCG that has been adopted is shown in Figure 1. The major phases of the life cycle are:

- Rehabilitation
- Decommissioning
- Production
- Commissioning
- Site Selection

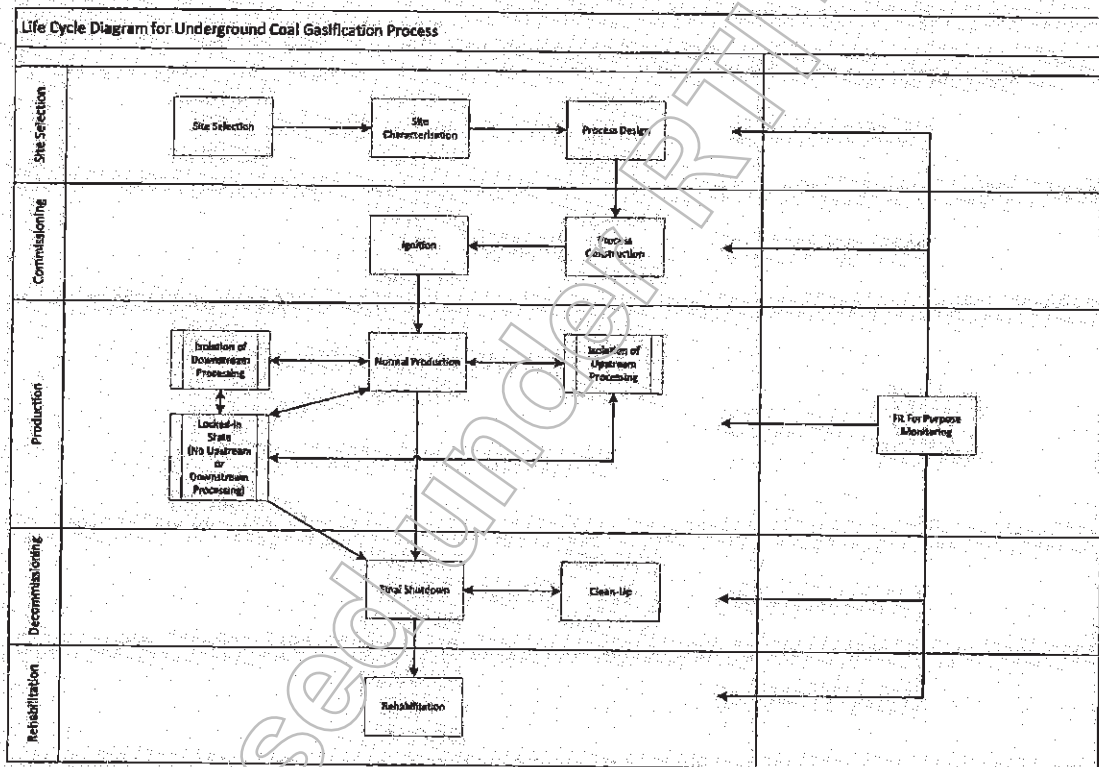


Figure 1 - Schematic of Life Cycle Stages for a UCG Plant

In assessing the pilot trials of Carbon Energy and Linc Energy it was apparent that the site selection is now historical and therefore this report deals with the critical characteristics of a site suitable for UCG and makes observations on the extent to which the Carbon Energy and Linc Energy sites meet those characteristics, i.e., a formal risk assessment approach was not considered appropriate.

For commissioning and operation, the ISP has structured its assessment around a risk assessment. The report sets out what the ISP considers to be the significant critical risks associated with these



phases of the life cycle. The Carbon Energy and Linc Energy reports were assessed with regard to how well they represented and dealt with these risks and what lessons could be drawn from the experience gained to date. In general the ISP found that the company reports contained sufficient information to undertake the analyses although accessing the information was made far more difficult than it need have been because of the poor integration of data and risk assessment (see Section 4).

In contrast, for the decommissioning phase, the ISP determined that the company reports did not include sufficient information to undertake an analysis of the extent to which the proposed technologies meet the necessary risk management standards. The ISP has raised what are believed to be the major risks and outlined what would be required from the companies to demonstrate that these risks can be effectively mitigated.

No significant information has been received regarding site rehabilitation beyond general statements of similarity to other rehabilitation challenges elsewhere. Therefore, the ISP is unable to make any assessment on this life cycle stage.

Recommendations are made throughout the report and these are consolidated into a single section for ease of access. However, the ISP does not advise reading or quoting of individual recommendations out of context.

The ISP has determined that an overarching recommendation can be made regarding UCG in Queensland at this point in time and in regard to the two pilot trial sites examined herein.

The approach of using an Independent Scientific Panel to comment on the viability of pre-established and pre-approved pilot trials has been challenging for all involved. The ISP would like to acknowledge that the companies engaged in this unusual process in good faith and with cooperation at all stages. Below (Section 3) the ISP presents a critical appraisal of the reporting by the companies. It must be noted that this critique is written with respect to an ideal process. The real world is not an ideal place and the time pressures and challenges of day-to-day demands on company staff are understood by the ISP. We therefore express our gratitude for the way in which company staff worked with the ISP throughout this process.

Finally, at various times throughout the ISP process, the ISP has been challenged to understand government processes. Better integration of information flow and alignment of goals between departments would have greatly facilitated various aspects of the ISP deliberations and timeliness of reporting. The ISP understands that individuals must be given opportunities for career development

as and when they arise. However, the frequent changes to the officers and secretariat supporting the ISP constrained the process from being as effective as it might otherwise have been.

The ISP is a part time role for each of the participants. We acknowledge that our inability to devote large amounts of time to the activities of the ISP has been a contributing factor in the time taken to finalise reporting. Nevertheless we accept responsibility for the shortcomings that are inevitably embedded in this report.

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## 2 Overarching recommendations

Following consideration of the materials made available to the ISP from companies and in the public domain, the ISP has come to the following overall conclusions.

- Underground coal gasification could, *in principle*, be conducted in a manner that is acceptable socially and environmentally safe when compared to a wide range of other existing resource-using activities.
- The ISP is not confident that the work to date on pilot trials in Queensland has demonstrated that UCG can be conducted, *in practice*, in a manner that is socially and environmentally safe.

Consequently, the ISP makes the following three (3) overarching recommendations.

### *Overarching recommendation 1.*

*The ISP recommends that the Queensland government permit Carbon Energy and Linc Energy to continue the current pilot trials with the sole, focused aim of examining in a comprehensive manner the assertion that the self-cleaning cavity approach advocated for decommissioning is environmentally safe.*

### *Overarching recommendation 2.*

*The ISP recommends that a fixed, strictly limited time period of six (6) months be allowed for the companies to undertake the necessary research and reporting on existing cavities that are not currently being gasified. It is the opinion of the ISP that if sufficient access to existing cavities cannot be achieved in that time then the design of the gasifiers is not sufficiently robust to conclude that the UCG process is socially acceptable and environmentally safe. <sup>2</sup>(Note) In three (3) months each company must produce a detailed plan as to how and when the gasifiers that are currently producing gas will be decommissioned. These gasifiers are necessary for demonstration because none of the existing cavities represents a completed (or even near completed) full sized cavity.<sup>2</sup>*

### *Overarching recommendation 3.*

*The ISP recommends that until decommissioning is demonstrated to be environmentally safe no commercial facility should be commenced. An exception to this would be if a proponent were to suggest very deep gasification where the consequences of a less than perfect decommissioning may, under certain conditions, be socially and environmentally acceptable.*

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<sup>2</sup> Site OH&S is not part of the Terms of Reference for the ISP. Questions of compliance or non-compliance with respect to site OH&S is clearly within the jurisdiction of Government.

### 3 Underground Coal Gasification (UCG) – some context

UCG can be used to extract energy from coal seams that are otherwise low grade and/or too deep to economically exploit by more traditional open cut or underground coal mining methods. Injection wells from the surface supply oxidants and steam to ignite and fuel the underground gasification process. The product gas is brought to the surface via separate production wells (although one well has been used for both functions in a small number of cases). Gasification is typically conducted at a temperature between 900°C and 1200°C but may reach up to 1500°C. The process gasifies the coal and generates what is referred to as Syngas which is principally composed of carbon dioxide, hydrogen, carbon monoxide, methane, nitrogen, steam and gaseous hydrocarbons. The proportion of these gases varies with the type of coal, the efficiency and control parameters of the gasification process. The product gas can be used for fuel for power generation, chemical feedstock, gas to liquids fuel conversion or fertiliser.

Approximately 90% of the available energy of the part of the coal seam that is incorporated by the cavity is released by the UCG process (compared to conventional open-pit technology which is ~60%).

It is important to manage oxygen flow to the coal to ensure appropriate Syngas production for the designed purpose and to avoid underground wildfire, which otherwise cannot occur because of lack of oxygen. The gasification process involves pyrolysis in various aspects of operation. Inevitably this produces chemicals that become serious contaminants if they escape the gasification cavity into the surrounding environment. The key aspect to ensuring an environmentally safe and socially acceptable UCG operation is to provide certainty of containment and/or removal of these chemicals. Therefore, an important focus of the ISP is on the decommissioning phase of the pilot UCG trials that are the subject of assessment of this report. Unambiguous evidence of clean cavities as a result of decommissioning is essential.

The ISP has not focussed on potential subsidence as this is considered to be well understood and regulated from the experiences of underground long wall coal mining.

The pilot trials in Queensland have become well known globally in the UCG community because of the longevity and quality of the work to date. The ISP has come to the view that Queensland's investment in commercial research via the pilot trials is potentially valuable to the State in the medium term. Over the next decades Queensland will extract a large proportion of the available coal seam gas and will still have export LNG facilities and gas collection and compression



Infrastructure in place at very large scales. It is plausible that Queensland could position itself with UCG to take advantage of those circumstances by investing and supporting the development of a world's best practice technology or technologies in UCG. However, much remains to be done to be confident that a full scale UCG industry is feasible in the sense of being environmentally safe and acceptable to communities whilst remaining economically viable.

#### **4 Company reporting**

Over the period of time the ISP has been overseeing the pilot trials and development of the pilot trial reports a great deal of change has occurred. It is clear that the companies have learned a great deal from the trials. The technical lessons are highlighted throughout this report. There has also been considerable advance in the structure and reporting of information.

However, there is more to be learned in both the technical and information areas. In particular, on the latter, the companies have been slow to come to appreciate the value of the risk-based approach that is conventional practice in process engineering. This is likely because of mining industry background of many industry participants. The ISP is firmly of the view that UCG should be treated as an industrial process and therefore operations should employ standard approaches (appropriately adapted to their particular circumstances).

Over time, each of the companies has produced information that accords with a risk-based approach. The ISP requested that pilot project reports follow the basic structure below.

1. A detailed background description of the technology (and/or technologies) being employed/tested in each trial;
2. A description of the life cycle stages of the technology;
3. An assessment of the risks associated with each stage of the lifecycle including description of hazards, pathways and receptors and proposed mitigation/control measures including levels of protection analysis. The companies were asked to supply supporting technical information to the level of detail necessary to allow the ISP to assess whether or not we were in agreement with the companies over the level of risk assigned and whether the mitigation measures were likely to be sufficient.

The ISP provided guidance to the companies in the form of a document outline and held a significant number of face-to-face meetings to assist with clarification.

Neither company seemed to have grasped the basic essence of a risk-based approach to the entire process. Instead, both companies appended separate risk assessments as though the risk assessment was an adjunct to the process rather than the core integrating framework. Each company provided a significant amount of detailed technical information in the form of additional appendices and chapters many of which were not even referenced by the risk assessment and many of which appeared separately and before the risk assessment in the reporting. Some appendices were clearly historical documents. Linc Energy attempted, in the last weeks, to summarise their additional voluminous, extraneous appendices creating unnecessary and uninformative duplication with the main report (much of which did not reference the risk assessment). Carbon Energy brought in a consultant towards the end of the reporting deadline to write an entire risk assessment. The consultant risk assessment was extremely thorough and well presented. This document has been instrumental in the ISP overall recommendation that the UCG trials should be allowed to continue until decommissioning is demonstrated. Unfortunately, the risk assessment does not indicate that the processes are integrated into the Carbon Energy company. As mentioned above, Linc Energy produced voluminous appendices, many of which were extremely helpful and of high technical quality (not all of them of the same quality standard unfortunately). However, their links to and integration with the risk assessment was more-or-less absent. Linc Energy requested permission to produce a risk assessment that deviated from the outline provided by the ISP; permission was granted on the undertaking that the assessment would be as rigorous as that outlined by the ISP. The risk assessment delivered was dominantly qualitative and did not deal with the level of detail expected (or as produced by Carbon Energy).

Over the period of communication with the ISP there was little information from the companies on their interactions with the Department of Environment and Heritage Protection (EHP), formerly DERM. Given that EHP communicated regularly with the ISP, it would have been preferable if the companies had have communicated their perspective on these interactions. Slow provision of detailed information on many aspects of the trials and late arrival of large quantities of technical information (not all of which was new or directly relevant to the risks that UCG poses) made the assessment process more difficult than it need have been.

## **5 Assessment of Underground Coal Gasification Industry and Queensland Pilot Trials**

### **5.1 Lifecycle of an Underground Coal Gasification Plant**

This report is structured around the life cycle of a UCG operation. The essential stages are: site selection, commissioning, production (including temporary shutdowns for maintenance and subsequent re-starts), decommissioning and eventual site rehabilitation. Each of these stages consists of several smaller phases or operating modes, with multiple interconnections and relations as shown schematically in Figure 1.

### **5.2 Site Selection**

Selection of an appropriate site for Underground Coal Gasification (UCG) operation is the single most important risk mitigation strategy and is therefore crucial to the economic and environmental viability of any UCG proponent. The site selection process should follow a structured approach that progressively analyses the characteristics of the site with the effort and expense escalating with each subsequent phase. Therefore, effort and development cost scale appropriately to reflect a site's potential. Selection of a suitable site for the operation of a UCG facility involves the investigation and consideration of the factors below:

- Target resource
- Regulatory Environment
- Social and community context
- Local land use context
- Receiving Environment
- Geological, geomorphological and hydrological parameters
- Risk

The particulars of the target resource that must be accurately assessed as part of the site selection procedure should include quality, size, geological and hydrological setting, and commercial viability of the resource. The efficiency of the combustion process and the quality of the product is partly governed by the saturation level and hydrostatic pressure within the coal seam. The deeper the seam the less probability there will be for operational problems e.g. uncontrolled ingress of air to the combustion chamber and the consequent possibility of a wildfire in the coal seam.

As a general guide a UCG site should have the following attributes:

- Coal seam at sufficient depth to ensure that any potential environmental contamination can be demonstrated to have minimal environmental consequences (ISP interim recommendation >600m);
- Coal seam sufficiently thick to sustain gasification with reasonable likelihood of economic viability (ISP interim recommendation thickness > 6m);
- Rank of coal should be lignite to non-swelling bituminous coal.
- Hydraulic head sufficient to contain efficient gasification (ISP interim recommendation > 200m).
- Coal seam capped by impermeable rock.
- Target coal located so that there is sufficient thickness between the target coal seam/measure and any valuable aquifer higher up the geological succession (ISP interim recommendation is 25 times the thickness of the coal).
- Sufficiently distant from rivers, lakes, springs and seeps to avoid contamination should chemical escape the cavity (ISP interim recommendation 1.5km).
- Absence of faulting or intrusions in the vicinity of the site. This is dependent on the size of the cavity (ISP interim recommendation is a minimum of 1 km from major faults).
- Sufficient distance from the nearest town and/or intensive surface infrastructure, e.g., irrigation or feedlots, and areas of significant environmental value, e.g., world heritage forests or wetlands, to avoid contamination should chemicals escape the cavity and to minimise impacts of odours (ISP interim recommendation is 5km. This distance will be site specific and is discussed further in section 5.4.1.4., Page 32).<sup>3</sup>

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<sup>3</sup> This is not to recommend gasification of any coal below this depth but to recommend that the coal should be at least 600m deep and other geological conditions favourable before gasification is considered. Below this depth, there are fewer useable aquifers and, if appropriate sealing horizons are present above the gasification depth, there is a much lower probability of materials (gas or liquid) moving to the surface. With these constraints UCG may be socially and environmentally acceptable.



### Pilot Trial Issues and Lessons Learned

The ISP recognises that much has been learned about site selection since the pilot trials were established. However, given the international experience at the time of the decision to approve the trials, the ISP remains uncertain why deeper coal seams were not targeted from the outset.

Figure 1 shows that process design is considered part of site selection. This is important because it indicates that site characterisation is not independent of the technology to be employed (including the surface downstream processing of the Syngas). The Linc Energy site (and report) contains a number of different pilot trials each with different designs. Consequently, it is certain that site characterisation was not optimised for the process design *a priori*. This is one reason why the trials must be considered pilot trials as opposed to demonstration trials (see Section 3).

An important link between site characterisation and process design is fit-for-purpose monitoring. It is necessary to know in advance the details of technology design to ensure that monitoring is sufficient, appropriately located and robust for the process envisaged. In Section 5.4.1.2 reference is made to the failure of infrastructure and the failure of monitoring systems to adequately inform the operators of the problems. An important aspect of process design as part of site characterisation is the scale up to multiple CRIP panels for a commercial operation. Site characterisation for a single panel is not the same as for multiple panels (particularly if they are to be testing different technologies). Site-wide monitoring design must be in place at the outset to ensure sufficient baseline and site behaviour information is available as panels are gasified, is essential. Such site characterisation is yet to be tested by Linc Energy because each pilot trial has been different and no site-wide technology-specific monitoring design has been implemented. Carbon Energy has a site design that envisages multiple panels. However, no full site monitoring plan has been presented. Further, the technology attempted in their first panel required design alteration to increase the probability of success in the second panel trial. On both sites, the monitoring schemes have evolved dramatically from the original designs and continue to do so over time. Overall, therefore, the pilot trials have not demonstrated successful site selection for a commercial scale operation.

The ISP does not accept the retrospective assessment by Linc Energy indicating that their site meets the requirements of a good site for UCG. The ISP remains of the opinion that the target coal measures are too shallow. Therefore, even if decommissioning was demonstrated to be environmentally safe at the site for pilot trials, the ISP would not recommend scaling up to commercial activities. The same recommendation is made for the Carbon Energy site, i.e., the target coal measures are considered too shallow for commercial scale-up.

**Specific recommendation #1**

The government together with the UCG industry and an independent advisory body, should develop guidelines and standards for site selection. The ISP recommends that site selection is a process that should be preceded and informed by appropriate geological surveys, hydrogeological modelling and an assessment of the community and environmental context. Such assessments must serve as Go / No Go gates for decision to develop or not any site for UCG operation, i.e., any limiting factor should signal No Go for the site.



### 5.3 Commissioning

The initial start-up operation for a UCG panel is a complex process that incorporates elements from site selection to ignition. During the start-up sequence for a panel, there are a number of process deviations which may occur resulting in risk scenarios. These are listed below:

- Deviation of geology / hydrogeology of site from that predicted in the site characterisation and design phases
- Improper well design for a selected site
- Deviation of well construction from design
- Failure of mechanical or electrical equipment aboveground
- Blockage of the injection, ignition or production wells or the panel itself
- Failure of the control systems
- Underground explosion
- Over-pressurisation of coal seam
- Ignition failure

As with any chemical process the likelihood of a deviation occurring is greater during the start-up phase than during normal operation. This is a well-accepted fact in the process engineering industry because any operation that has not reached 'steady-state' is inherently more difficult to predict and control. To combat this increased risk, process engineering guidelines and standards dictate that a risk management based 'commissioning' approach be undertaken. Commissioning should involve world's best practice for risk management in process industries including HAZOP, fault tree analysis, event tree analysis, levels of protection analysis (LOPA) including all the controls to ensure that the inherent risks of UCG activities are minimised from the outset. It is important that this process be implemented from the beginning, across the entire operation and not applied on an *ad hoc* basis or only to specific process equipment.

It is the strong opinion of the ISP that the ignition sequence of a panel is analogous to the initiation of a new process plant. Therefore it is recommended that a commissioning approach based on risk management be utilised by all UCG proponents every time a new panel is to be commenced. The fact that the consequences of a hazard event during commissioning are predominately economic rather than environmental is not material to this recommendation. This style of risk management, from the process industry, should pervade every aspect of a UCG operation, beginning with site

selection, design and commissioning. Therefore, "commissioning" is the appropriate standard term and concept from the processing industry. The ISP is of the view that this term be adopted and consistently applied in the UCG industry.

#### **Pilot Trial Issues and Lessons Learned**

The risks associated with commissioning can be minimised by proper site selection, adherence to world's best practice for UCG technology and cavity design as well as appropriate commissioning procedures. However, it is clear from the documentation provided by both proponents that the risk management approach advocated by the ISP was not followed from the outset. This should change in any future activities.

The ISP has formed the view that the major commissioning risk is explosion in the initiating cavity. This may adversely damage or weaken the mechanical performance of the well heads, well casings, well liners, control valves and above ground systems. Safe operating procedures (SOPs) for the ignition sequence are a critical component of risk management and part of best practice. SOP's have not been provided so it is not possible for the ISP to assess their adequacy.

Linc Energy, in their Risk Assessment Section discussed risk from high oxygen as a precursor of explosive environments. Significant work on Gasifer 5 was specifically discussed with respect to this risk and additional measures were employed to monitor this risk. The procedures during monitoring should be addressed in an SOP. It is the opinion of the ISP that it is the responsibility of Government to ensure compliance with the SOP and monitoring procedures in order to minimise risk.

#### **Conclusions**

The ISP concludes that, based on the Linc Energy and Carbon Energy pilot trials and the experience gained, that the two companies have the knowledge to establish world's best operating procedures for mitigating the significant risks during commissioning including the highest risk, i.e., underground explosion.



#### Specific Recommendation #2

The ISP recommends that for each new panel, the UCG industry adopts a 'commissioning' approach rather than 'start-up' or 'ignition' regardless of size or multiplicity, to reduce the risks associated with this phase. Commissioning should involve world's best practice for risk management in process industries including HAZOP, fault tree analysis, event tree analysis, LOPA including all the controls to ensure that the inherent risks of UCG activities are minimised from the outset.

### 5.4 Production

The production phase (see Figure 1) of a UCG plant is in principle a normal process involving non-ambient temperatures, pressures and the production of chemicals such as syngas and heavier hydrocarbons. The operation of a UCG plant should therefore be considered within the risk management ethos of any chemical or processing industry. This should include contingencies for scheduled and unscheduled maintenance on all unit operations of the UCG process and measures for emergency shut-down procedures. The major difference between UCG and other process industries is that the reactor for the UCG process is underground and it is exposed to some unknowable and uncontrollable conditions, which are not found in above ground operations. This is also the primary source of increased risk for the UCG process in comparison to other gasification processes. These uncertainties include aspects of the coal geology, hydrogeology, strata morphology and overall cavity growth.

As with its above ground analogue, coal gasification, the UCG process involves pyrolysis, combustion and gasification that will inherently produce contaminants such as benzene, toluene, ethylbenzene, xylenes (commonly referred to together as BTEX), various phenols, polycyclic aromatic hydrocarbons (PAHs) and other toxic compounds. Some of these compounds may be naturally present in coal seam aquifers. Therefore an appropriate baseline study is necessary to differentiate natural from contaminant products.

If contaminant chemical species are present then these have the potential to become environmental contaminants if they escape the controlled UCG process. In an ideal UCG process situation, everything that is produced in the underground reactor should either be extracted or remain within the cavity. Any contaminants brought to the surface should then be treated in appropriate waste facilities to reduce their inherent risks. However, as the UCG process continues, the uncertainties in

the site geology ensures that there will be variations and deviations in temperature, pressure, groundwater flow and gas and vapour movement into and out of the UCG cavity. As a result there is a risk of contaminants leaving the cavity and entering the surrounding strata and aquifers. This has the potential to lead to underground water contamination or syngas egress towards the surface through the overburden via faults / fissures or high permeability regions. Detection of potential contaminants reaching the surface is a matter of compliance with an adequate monitoring programme using a spatially valid array of suitably constructed monitoring wells. All these matters fall within the jurisdiction of the Government.

UCG drilling technologies and cavity designs have evolved significantly in the last 30 years. However, the UCG process itself remains complex and the scope, scale and severity of the emissions will depend on the risk mitigation strategies adopted by the UCG proponents the aim of which is to deliver results that are environmentally, socially and economically acceptable for all stakeholders. In view of these issues, the ISP has taken that approach of Layers of Protection Analysis (LOPA) to examining the normal Production Mode. After reviewing the final summary reports and associated appendices from Carbon Energy and Linc Energy the ISP proposes a suitable LOPA (Table 1).

Table 1. Layers of protection proposed by the ISP for UCG risk management in the operation phase of the life cycle.

Layer	Description
1	Site Selection
2	Process Design
3	Process Control
4	Critical Alarms
5	Safety Instrumented Systems
6	Pressure Relief Systems
7	Physical Protection
8	Plant Emergency Response
9	Community Emergency Response

The interpretation of Table 1 is that the preference is that mitigation of any potential risk should be effective at the lowest (smallest numbered) layer possible. Risks are inherently associated with any industrial activity, and only after mitigation from a lower level is insufficient (or fails) should the rest be relied upon (needed). Nine layers of protection are considered appropriate to ensure an environmentally safe and community-acceptable UCG production mode. If the cost of implementing the layers renders the operation uneconomic, it should not proceed, i.e., compromise on layers of protection for economic viability is not acceptable.

**Issue and Lesson Learned**

Given retrospective knowledge of incidents that occurred during the pilot trials it is apparent that the conventional process engineering risk management based approach (LOPA - Layers of Protection Analysis) was not part of the original operating ethos of the pilot trial.

To their credit, both Carbon Energy and Linc Energy have rectified inadequate operations and improved their UCG operational management and knowhow over the course of the pilot trials. It is expected that the experience of having put in place LOPA for the pilot reporting that the companies are in a strong position with respect to operating a single cavity operation.

**5.4.1 Assessment of levels of protection**

**5.4.1.1 Site Characterisation**

Observations and a recommendation regarding site selection are provided above (Section 5.2). Sufficient site characterisation and process design is the most critical factor in identifying and controlling risks with the operational phase. A sound understanding of the variability of the various strata and their interrelationships provides significant risk mitigation. Sufficient distance from environmental and community assets of concern is key in ensuring safe operating conditions can be maintained.



#### **Pilot Trial Issues and Lessons Learned**

Linc Energy manages a site that is clearly an experimental facility (of world leading standard). Linc Energy makes no pretence that the site was selected and characterised with the risks associated with a particular commercial-ready design in mind. Therefore, it is not reasonable to expect that the site characterisation necessarily meets the optimal requirements of first layer of protection for all the designs tested to date. In this regard it is important to observe that the most recent pilot (gasifier 5) is substantially different to gasifier 4 in a number of non-trivial design respects.

Carbon Energy has managed their site with a view to scale up of their operation to multiple panels. The failure of the first panel to progress beyond a short distance before collapse of a critical underground pathway required design change for the second gasifier (which appears to be functioning more effectively). Clearly, Carbon Energy is also still evolving towards a final stable design. Until this is complete it is not reasonable to declare that site selection has been optimised. Further, as indicated earlier, the ISP does not agree that the site meets the criterion of sufficient depth of the target coal to be suitable for a commercial facility even for the design currently under pilot testing.

It is clear that both companies have learned a lot about gasifier design as would be hoped from well run pilot programmes. Optimal site characterisation (careful and comprehensive matching of site characterisation and process design) is yet to be convincingly demonstrated. The ISP is of the opinion that both companies have gained sufficient knowledge to be able to demonstrate this in selecting a new site.

#### **5.4.1.2 Process Design**

Both Carbon Energy and Linc Energy have developed their UCG technology designs to a variation of the current state-of-the-art parallel controlled retracting injection point (CRIP) design with directional drilling. This is a significant advancement from older designs utilised in international UCG experiences where vertical wells with reverse combustion linking or hydraulic fracturing were used. Parallel CRIP designs are less prone to the generation of fractures or fissures in the coal seam or surrounding strata, and are therefore useful in mitigating risks associated with syngas egress and underground water contamination.



#### Conclusion

Any future UCG activity in Queensland should be based on world's best practice, which at the timing of this report is the parallel CRIP system. Further the injection, ignition and production wells should be linked via directional drilling. The ISP concludes that older technologies, such as vertical wells, linear CRIP, hydraulic fracturing or reverse combustion linking should be excluded from design consideration due to the higher associated environmental risks.

The process and geotechnical modelling of cavity growth and UCG reaction conditions presented in the final reports of both proponents is limited. Carbon Energy do not provide any modelling on cavity growth, which should be backed by general mass and energy balances and specific data from the pilot trial for validation. A simplified example of a multi-panel site design based on long-wall coal mining software (COSFLOW) with no evidence of calibration or validation was provided. Some information is provided on cavity location and morphology for panel 1, but this is more relevant to the decommissioning phase and as such is discussed in Section 5.5.

Linc Energy presented a model of cavity growth based on computational fluid dynamics and coal reaction, consumption and gas generation. Linc Energy has therefore developed in-house expertise in modelling cavity growth. However, the model deals with ideal conditions and is not validated. It is unclear how well it would perform at forecasting variations that cannot be controlled from the surface, which may result in preferential reaction pathways occurring which in turn, will influence the cavity growth and morphology. No attempt has been made to compare modelling with actual cavity data (see Section 5.5)

There are considerable differences in the amounts of information available between the Linc and Carbon models. The most important missing information is related to the validation of the Linc model. Detailed confidential information related to cavity modelling was presented by Linc to the ISP for evaluation. This may be available to Government if formal requests are made.

Information about cavity growth and the performance of the underground reaction chamber is crucial to the process design, especially for commercial operations. The level of uncertainty in the behaviour of the cavity during operation limits the effectiveness of the process design and therefore compromises the process engineering risk management approach advocated by the ISP. This reinforces the view of the ISP that the pilot trials still remain as formal development and learning experiments and as such they do not meet the information requirements of a scaled up process.

#### Conclusion

Cavity growth models must be developed and suitably validated for single panel UCG operations before UCG could progress to a multi-panel design.

In this LOPA, process design also incorporates all aspects of mechanical integrity. Of particular importance are materials selection, corrosion allowances and the mechanical ability of the design to cope with high pressures, temperatures and flow rates.

#### Pilot Trial Issue and Lesson Learned

The pilot trials have been subject to mechanical design problems relating to the ignition, injection and production wells. Mechanical failures of the well casings and / or well heads resulting from inadequate design, selection of materials and construction have been experienced. Deviations caused by temperature and pressure resulted in weakening of the liners or lifting of the wells that subsequently failed. Whilst petroleum engineering designs were adopted, these did not account sufficiently for the higher temperatures associated with UCG operation and there is a clear need for a shift to design standards that do, such as for those associated with geothermal wells.

Carbon Energy and Linc Energy have evolved their well designs to account for UCG operations to enable operation and acceptable deviation within appropriate temperature regimes and *in situ* removal of well blockages. This greatly reduces the risk of well head failure.

Downstream processing of the syngas and associated condensates including surface water treatment is an integral part of the entire UCG operation and as such should be designed accordingly to deal with the significant variability and process deviations associated with normal production. It is observed that several issues relating the treatment of process water in the pilot trials could have been avoided if this principle was followed. For example UCG process water has exceeded piping and knock-out pot capacities resulting in minor spills directly onto soil or into local watercourses. Whilst these incidents have been thoroughly investigated by EHP (formerly DERM) and appropriate remedies taken, that they were allowed to occur in the first place leads the ISP to conclude that the

original process design was not carried out using an appropriate risk management approach and/or that the necessary controls were *not* in place.

#### Conclusion

All downstream processing for the syngas and process water should cater for process deviations (including inherent safety factors) and unit operations should be designed and sized accordingly. Equipment should be designed to account for any corrosion that may result from the presence of syngas and water.

The flare is an integral part of the process design and is necessary for safe operation of both upstream and downstream processing facilities.<sup>4</sup>

The ISP recognises that should the downstream processing fail, it may not be wise to shut-down the operation of the cavity and as such systems, such as the flare, should be in place in order to safely combust the excess syngas.

#### Conclusion

A flare is a crucial part of the UCG operation and should be incorporated into the process design and be able to cope with process variation and deviations.

In view of the complexities associated with UCG operation, the LOPA design process requires inclusion of monitoring as an integral aspect of protection. In fact, the design of monitoring systems should be considered at the inception of the design process and must be appropriate for the site conditions and knowledge of possible deviations and indications that deviations may be occurring.

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<sup>4</sup> Current monitoring processes are specific to each pilot and are considered, generally adequate, by the ISP. Prior to any commercialisation, detailed specific monitoring strategies should be developed for each UCG operation. Compliance with the monitoring requirements should be a Government responsibility. In principle, flares will decompose or combust hydrocarbons and condensates. Without specific strategies for removal, remaining issues would relate to H<sub>2</sub>S, Hg, Ar, Cd, Ni and possibly silica at ppm or ppb concentrations. Industrial processes are available to assist in removal of these components.



#### **Pilot Trial Issue and Lesson Learned**

Pilot trials have corroborated conventional understanding that monitoring systems are an integral component of the UCG process design. For example, the operating pressure of the cavity should not exceed the hydrostatic pressure of the surrounding groundwater. When the hydrostatic pressure is exceeded for a sustained period an increased presence of contaminants in the monitoring wells has been observed and reported. Carbon Energy and Linc Energy acknowledge that operating pressures greater than the hydrostatic pressure lead to gas and vapour diffusion into the surrounding strata resulting in detection of products of pyrolysis in groundwater. Therefore groundwater monitoring wells should be setup prior to the construction or drilling of any panel. The pilot trials have included monitoring wells which have been setup as regulatory and reporting requirements from the various regulatory bodies, or as deemed appropriate by the individual UCG proponents.

Carbon Energy has provided data indicating that when operating pressure dropped below hydrostatic groundwater pressure, contaminants migrated and that these could be redirected to the cavity by control of the rate of air injection and thereby internal cavity pressure. This is an important lesson of successful monitoring, deviation detection and corrective action.

Given that the pilot trials have demonstrated that flow reversal to the cavity occurs and that it can be effectively monitored, then the ISP concludes that it can be effectively monitored in practice. Monitoring the performance of the pilots on an ongoing basis as they proceed is a Government responsibility not that of the ISP. The experience of the panel indicates that this is feasible.

The evolving design of the monitoring wells has been subject to regulatory pressures, albeit to varying degrees across the UCG proponents, with several pilot trials required to install additional wells to better monitor the UCG process. To their credit all the UCG pilot trials have installed monitoring wells additional to the initial environmental licences for their own understanding and monitoring of the process.

Companies have yet to fully demonstrate the capability to design and install a monitoring network suitable for multi panel operations and that some of the groundwater data may not be representative. For example, the Linc groundwater monitoring bores are self-purging (gas lifted groundwater). This may result in the loss of volatile organic carbon contaminants during sample collection. In addition some doubts exist as to the construction of the Carbon groundwater monitoring bores which may inhibit the collection of representative groundwater samples.



It is possible that these aspects may prevent an accurate assessment of underground impacts related to chemical species transported via groundwater and/or gas. The ISP acknowledges these difficulties as do the pilot reports, particularly the Carbon Energy report. Suggestions are made for the use of improved systems. The ISP also notes that Government Departments have instigated an environmental evaluation on the basis of such monitoring.

#### Conclusion

The layout of groundwater monitoring wells should be integrated into process design. It is recognised that some wells are necessarily to be sacrificed as the gasifier grows. Sacrificial wells may be used to access the UCG cavity during commissioning and rehabilitation. Monitoring wells should be setup prior to commencement of any operations. The capability to design and install monitoring suitable for multi-panel operations has not been demonstrated.

#### 5.4.1.3 Process Control, Critical Alarms, Safety Systems and Pressure Relief Systems

LOPA layers 3 through 6 cover various aspects of basic and advanced process control and automated safety systems for the UCG process and as such have been combined for the purposes of this summary. These layers of protection are commonly associated with the oil and gas processing industry. The UCG process produces syngas at moderate temperatures and pressures and therefore operates within the parameters of this industrial sector.

#### Pilot Trial Issue and Lesson Learned

The pilot trials suggest that many of the risk management systems adopted by the process industry for LOPA 3-6 have not been adequately implemented by any of the UCG proponents. However, the risk assessment reports provided by both Carbon Energy and Linc Energy have shown the incorporation of some of these layers of protection and discuss others that are under current consideration.

Carbon Energy has provided Piping and Instrument diagrams (P&IDs) containing pressure, temperature indicators, process control valves, pressure relief valves, flare systems among other

basic and advanced control systems. The risk assessment report from Carbon Energy and R4Risk (attached as Appendix K) contains a detailed analysis of the hazard events, and specifics of the control systems with links back to equipment tags allowing full analysis of their systems. The ISP commends the content of this report, but its full value is not properly integrated into the main document (see Section 4). The R4Risk report is significantly more comprehensive than that provided by Linc Energy who provided more qualitative information regarding their control systems. Linc Energy did not provide P&IDs nor did they give expected details of specific references to the layers of protection, basic controls or advanced controls in place or under consideration.

Basic process controls form the first line of monitoring to measure deviations associated with pressure, temperature, flow rates and gas quality. These parameters can and should be monitored and controlled online in real time. However, any process deviation that causes significant environmental impacts (such as groundwater contamination) may only be detected by monitoring wells several weeks or months after the event. It is therefore imperative that operational procedures allow continuous or near continuous monitoring of these parameters. For the scope of the pilot trials this approach allows the operators and engineers the greatest opportunity to analyse the cause of a particular environmental trigger and investigate the appropriate course of remedial action.

The ISP observes that several of the incidents reported during the pilot trials came about through a lack of sufficient automatic monitoring of pressure, temperature, flow rates and gas quality. For example there is evidence in various submissions relating to the Carbon Energy pilot trial, that cavity pressures have in several instances increased beyond that of the hydrostatic groundwater pressure. This resulted in contamination plumes of greater or lesser extent in April 2010 and March 2011. In the opinion of the ISP, had appropriate control systems been in place, the risks posed as a result of the initiation of the events would have been significantly decreased. However, the monitoring records did allow Carbon Energy to identify the cause of the contamination plume and take appropriate remedial action to reduce the consequences.

For larger, commercial operations where sufficient process and groundwater modelling has been undertaken, this level of monitoring would allow operators to take immediate corrective action and thus reduce the severity or timeframe of the event and thus reduce its consequences. Basic process controls will incorporate low and high set points to address the UCG process variability. Examples include:

- The pressure difference between the cavity and the hydrostatic pressure of the groundwater to avoid gas egress and underground water contamination.

- The cavity and well temperatures that may cause well head or liner damage or increase the production of pyrolysis components.
- Injection and production well flow rates that directly relate to blockages of water and ash.
- Mass balances to check for gas losses.
- Gas quality to ensure that the UCG design is meeting syngas specifications.

Critical alarms are those devices related to independent sensors for process parameters, interlocks, isolation valves and redundancy where appropriate. Critical alarms require a quick diagnosis from the operator or engineer and a quick decision regarding the need for intervention to correct a process deviation. The documentation surrounding the pilot trials suggests a lack of critical alarms and appropriate decision-making procedures from the outset. For example on one occasion during the Carbon Energy pilot trial, backpressures on an injection well spiked to 37 bar resulting in emission of process water through the flare. This represents an injection pressure 270% in excess of the expected hydrostatic pressure. In this instance the high pressure was caused by a blockage in the well. This appears to have been noted by Carbon Energy, yet they made the decision to keep injecting under the premise that the blockage would clear itself. It is the opinion of the ISP that had this scenario been examined in an appropriate risk management culture, prior to or as part of the commissioning process, then a different decision (for example to cease injection, isolate the injection or provide pressure relief) would have been taken. More importantly, the decision taken would have followed a specific procedure designed to mitigate the risk scenario, rather than the apparent *ad hoc* decision process that took place. However, the ISP does observe that the post-deviation analysis undertaken by Carbon Energy resulted in new operating procedures being developed to avoid similar risk scenarios in the future.

Safety instrument systems (SIS) are required as part of the LOPA philosophy. SIS are advanced control systems that automatically instigate emergency shut-down procedures to safely isolate parts or the entirety of the plant.



#### **Pilot Trial Issue and Lesson Learned**

Incidents occurred during the pilot trials that indicate that sufficient safety instrument systems were not in place. One example of this may be emergency shutdown buttons for the injection compressors following over-pressurisation of the cavity and failure of pressure control systems. This may include provisions for emergency depressurisation of the cavity, sending the syngas to the flare.

The pilot trial reports do not indicate such a sophisticated level of process control. However, the risk assessment reports for both Carbon Energy and Linc Energy have indicated that the UCG proponents have learned the necessary awareness of these issues and plan to have provisions in place in the future.

Pressure relief systems are required to protect equipment which operates under pressure and which can cause environmental consequences through uncontrolled atmospheric discharge. Although the pressure of the cavity is not excessive, it is important that any depressurisation is carried out in such a way as to not instigate reaction extinction, cavity collapse or flooding. As such the pressure relief system must be designed and operated independent to other controls within the UCG process.

#### **Conclusions**

The ISP concludes that the UCG industry should adopt world's best practice for basic and advanced control systems (IOP 3 through 6) from the oil / gas and petrochemical industries.

The ISP further concludes that the basic process controls be adopted as the first line of monitoring.

#### **5.4.1.4 Physical Protection Systems**

Physical protection systems are used to mitigate the severity and prevent escalation of a risk scenario. They include systems such as physical bunds on tanks and fire curtains. There were several instances during the pilot trials for all UCG proponents when it appears that inadequate provisions were made for bunds on knock-out pots, process water/odour containment and process liquid containment. In one example, when knock-out pots overflowed or piping ruptures occurred, the



spills proceeded directly onto soils or into local waterways. In another example, Linc Energy and Carbon Energy have been subject to odour complaints from local landowners.

These problems were appropriately addressed following the incident investigations, but it does once again highlight that the majority of the UCG risks have been managed on a post-incident basis.

The ISP is aware that the transport of odourous gases may occur and the degree of transport will depend upon site specific and local weather conditions. Thus a zone of 5km radius beyond which no site derived odourous gases are detectable is an initial suggestion until site specific values are derived. Government should develop evidenced-based guidelines as soon as possible and that the distance specified should be either appropriate to the meteorological conditions on site as ascertained by modelling or as regulated by the environmental licence of the site.

#### Conclusion

The ISP concludes that physical protection systems are required and should include gas detection for flammable and toxic gases, bund areas for excess process water or process liquids and fire protection systems.

#### 5.4.1.5 Plant and community emergency response

Each site is unique in terms of geographical features, boundaries and access points. Therefore these plans should be developed in consultation with appropriate regulatory and community bodies, according to world's best practice and appropriate industry standards.

#### Conclusion

Plant and community emergency response plans should be developed in consultation with appropriate regulatory and community bodies, according to world's best practice and appropriate industry standards.

#### 5.4.2 Other operating modes – Temporary Shutdown and Re-Start

Temporary shutdown and re-start are important phases of any process industry and may be associated with scheduled or unscheduled maintenance of equipment directly related to the UCG

operation. The timeframe associated with temporary shutdown may be short (1-3 days) or medium term (for several weeks) depending on the scope of work. Issues relating to temporary shutdown and restarting an on-going UCG panel are very similar to those for the initial commissioning or final decommissioning phases. Long periods of temporary shut-down may lead to reduction in the cavity temperature to such a point where coal pyrolysis becomes prevalent. In these conditions the production of undesirable contaminants increases.

#### **Pilot Trial Issue and Lesson Learned**

A point of concern is if temporary shutdown leads to the extinguishment of the UCG reaction. This is the worst-case scenario, possibly leading to an inability to restart the operation, and/or associated unacceptable risks (repeated failures to reignite and possibility of explosion).

Difficulties are associated with the size of the cavity and lack of design features for such an occurrence.

The ISP observes from the pilot trial reports that the companies have learned how to successfully deal with temporary shutdowns lasting from several days to several weeks over which time the reaction was maintained as viable. Subsequently the panels were successful restarted without incident.

#### **Specific Recommendation #3**

If the UCG reaction has been extinguished, then restarting the panel is not an appropriate option. The process should proceed directly to decommissioning and rehabilitation. Best practice decommissioning as per the risk-based approach outlined previously should be adopted.

### **5.5 Decommissioning**

The decommissioning sequence is an important process that transitions between full production and site rehabilitation. The final shutdown sequence for a UCG panel is complex with a medium to long-term timeframe. The shutdown sequence is different to the temporary shutdowns discussed in Section 5.4.2 because the aim is to extinguish the reaction and bring the materials surrounding the final cavity into thermal equilibrium with the surrounding coal seam and over- and under-lying strata. The ISP is advocating a decommissioning approach rather than 'shut-down'. This is analogous to the risk-based 'commissioning' approach advocated during start-up and ignition.

Necessarily, the cavity must transition from gasification temperatures eventually to that of surrounding conditions. A second important change of state relates to pressure. As the cavity is cooled and the gasification is suppressed (most notably by reduction in supply of oxygen) the internal pressure decreases, which is a clear deviation from normal operating conditions. The rate of pressure decrease is important, somewhat variable and dependent on the conditions within the cavity.

During cooling there is an inherently high probability of formation of potentially contaminating chemicals (e.g., benzene, toluene, xylene (BTEX), phenols, various polycyclic aromatic hydrocarbons (PAHs) and other hydrocarbons). This is a result of the ongoing coal pyrolysis at temperatures between 250°C and 700°C, which favour their formation and so cooling of the reactor cavity will inevitably produce these unwanted chemicals. Carbon Energy and Linc Energy have appropriately highlighted these chemicals and their properties. They have also demonstrated capability in their detection and measurement.

Literature from overseas trials was reviewed by the members of the ISP and a literature review was provided by one of the proponents. There is reasonable evidence from the USA that a clean cavity may have been achieved. For information relating to the "clean cavity" concept reference should be made to the available literature. Government should seek to obtain the bibliography relating to the literature review from the company concerned.

The ISP has viewed a small core taken from one of the USA trials. Examination of the mineralogy of this core suggested a cooling pathway. It is up to the companies to design and undertake comparable sampling from the two pilots. If this is not possible, then the technology has a significantly greater degree of uncertainty than would be the case if direct mineralogical and chemical analysis of the remnant material were undertaken. Identification of the solids and liquids remaining in the cavity would reveal a greater degree of certainty for any contaminant phase transport modelling undertaken.

It is the responsibility of the companies to design appropriate sampling or measurement regimes to monitor the cleanliness of the cavity. Thus, the ISP believes, it is the responsibility of the companies to solve with the Government concerns relating to compliance with these regimes. If a "clean cavity" is not able to be demonstrated then the technology is not sufficiently well designed to be considered safe.



Carbon Energy and Linc Energy propose a "self-cleaning" approach to decommissioning (although both also note the possibility of having to actively flush the cavity if necessary). Under such a scenario the reduced pressure in the cavity is advantageous in that a local zone of low pressure draws groundwater from all directions towards the cavity. This is important because any residual chemicals from the active zone (or beyond), that are not adsorbed to the coal, are, in principle, flushed into the cavity. The residual heat in the cavity vaporises the water and contaminants which are then brought to the surface for appropriate handling and treatment. In principle, this is an attractive process if it can be demonstrated in practice in large cavities partially filled with rubble and with significant temperature gradients due to the size of the cavity and longevity of the panel gasification duration.

#### **Pilot Trial Issue and Lesson Learned**

Carbon Energy and Linc Energy both propose design panel systems of several hundred metres of length and tens of metres of width and significant height (depending on the coal seam but of order 10m). To date, there is no evidence of the capability to control the temperature and pressure changes in such large cavities because no such cavity has yet been completed. The panels currently under gasification by Linc Energy and Carbon Energy are the best opportunity to date to investigate these important issues. Extrapolation from other small cavities is inadequate as is taking analogies from overseas experiences with different designs (and also small cavities). It is simply not possible to demonstrate that self-cleaning is effective in a large cavity until a large cavity is available on which to conduct the necessary monitoring.

Linc Energy and Carbon Energy have learned the necessary monitoring and measurement capabilities to be able to demonstrate self-cleaning but to date no cavity exists upon which a convincing demonstration can be undertaken. Demonstrations on current small cavities have been unconvincing (access to cavities appears to be a very challenging design issue).

#### **Conclusion**

Several cavities (some panels) have been shut down during the pilot trials and are undergoing various stages of decommissioning and, presumably, rehabilitation. However, insufficient information has been gathered or provided regarding decommissioning during the pilot trials. A formal process model, mass and energy balances and appropriate data support were all lacking. The reliance on analogues from overseas experiences is insufficient. Therefore, the ISPS is of the opinion that the best strategies have not been fully developed at this time.



### 5.5.1 Panel/Cavity Information and Unidentified Risks

Neither Carbon Energy nor Linc Energy provided sufficient information on the operational modelling (including morphology and growth) and decommissioning of their previous cavities or currently operating panels for the ISP to reach a recommendation of safety in practice.

The ISP decided not to review operational processes, but rather focus on the risk assessment and supporting background data.

The information provided by Carbon Energy on panel morphology and size was inconclusive. An attached consultant report (Appendix J) concluded that a new technique trialled for the purpose of mapping the decommissioned panel 1 was successful. However, the figures lacked scales and colour coding of the spatial information was not described, making independent analysis and verification by the ISP all but impossible. Indeed, one possible interpretation of the information is that the morphology of the cavity did *not* match expectations. That is, the cavity appeared as toroidal, possibly due to rubble collapsed in the centre of a more spherical cavity. Further, there appeared to be void space behind the ignition point, which would not be expected. The ISP concluded that Carbon Energy would not have presented such information if this interpretation were correct and not remark upon it themselves. Consequently, the ISP does not concur with the consultant that the technique was successfully applied to UCG. Further the ISP suggests Carbon Energy reassess the data or apply another technique to this important aspect of UCG.

The composition of the cavity following operation is important for decommissioning and rehabilitation strategies.

The plausible options for contents of a final cavity include that it is filled with:

- a. rubble from gasified coal (ash and tar), collapsed overburden, interburden and disturbed underburden; or
- b. underground water containing a range of constituents native to the groundwater, e.g., salts, and products of gasification and pyrolysis; or
- c. syngas mixed with air and coal seam gas (methane and carbon dioxide); or
- d. a mixture of all of the above.

The ISP is of the view that (d) a mixture of all of the above contents, is the most plausible and that the gas mix and water constituents are likely to vary over time.

Linc Energy provided a (partial) framework (see figures L4 and L6) in their decommissioning report. This model acknowledges that the overburden and underburden are compromised by the gasification process and that the final cavity includes "rubble-altered overburden". The ISP suggests that the critical variables of the framework be more fully elucidated and formalised into a formal engineering conceptual model. This must include a set of reference equations that can be used as a basis for statements as to the likely content of the cavity and include an appropriate conversion from 2D (as in the figures) into 3D (as exists in the real cavities). Such a model will be critical in gaining confidence that the company knows what it is dealing with. Without this, the relative quantities of water, ash, tar, rubble and gas are speculative and no mass balance or dynamic prediction models of sorption or water movement can be made with confidence. Such a model will also provide a basis to complete the picture of the cavity because measurements will always only be a partial information source for delivering the certainty required to deliver confidence that a clean cavity has been achieved.

Appendix J of the Carbon Energy report concludes that rubble-filled is the best model fit for the contents of the cavity. This conclusion means that the cavity is likely dominantly filled with material collapsed from the overburden. By comparison, Linc Energy provided a visualisation of the "material affected zone – MAZ" of gasifier 3. In that visualisation it was clear that both overburden and underburden were part of the zone, although what was intact and what was merely altered was not able to be discerned. That is, the MAZ extended above and below the coal measures and therefore the integrity of the overburden and underburden were affected by the UCG process consistent with the Linc Energy conceptual framework as presented. Surprisingly the Linc Energy decommissioning report did not make reference to this issue. Given the conclusion by the Carbon Energy consultants that their cavity is likely rubble-filled it is difficult to see how the Linc cavity would not also contain material that collapsed from the overburden (again as it was indicated in their conceptual model).

With respect to the earlier gasifiers the process used to confirm that the coal has ceased to burn after decommissioning was monitoring the composition of the gas produced. There are very clear trends which indicate the shutting down of the gasification process. These include decreasing concentrations of CO, CO<sub>2</sub> and N<sub>2</sub> (which are monitored on-site) and the decline of CH<sub>4</sub> back to baseline. All pyrolysis will cease when the air/O<sub>2</sub> supply is turned off.

Once the source of oxygen is removed and at geologically suitable sites, all burning will cease and the fire will be extinguished. This is unlike underground coal fires. For example, Jharia in India has experienced a coal fire that has burned underground for approximately 100 years in spite of

attempts to extinguish the fire by using nitrogen. The failure to extinguish the burn relates to failure to cut off all supply of oxygen via ventilation shafts, the numerous open pits and old mineshafts in the area. Comparably, spontaneous combustion cannot occur in UCG operations once any oxygen supply is removed.

With current Carbon and Linc gasifiers, the decommissioning is not yet complete, hence the recommendation (Overarching Recommendations 2) that decommissioning trials continue for another 6 months. At the end of this period, a definitive statement relating to the cessation of burning should be possible. All the indirect evidence currently available indicates that burning of coal (pyrolysis and gasification) ceased soon after the injection of air or oxygen stopped.

Background information from both Carbon Energy and Linc Energy indicated that the Springbok Sandstone overlying the coal measures contains small discontinuous aquifers interspersed by dry aquicludes (lenses through which water cannot move or through which water moves so slowly as to be negligible). Carbon Energy and Linc Energy indicated that no aquifer directly overlies their reactor panels and that the tight Springbok Sandstone forms an effective seal against gas egress from the cavity. However, if the post-gasification cavity is at least partially rubble-filled, as proposed by Carbon Energy, implied by Linc Energy conceptual model and possibly MAZ visual rendering data and accepted by the ISP; then it stands to reason that the rubble is from the overburden. This strongly implies that the integrity of the seal is potentially compromised. None of the UCG proponents have adequately identified this as a risk. Furthermore, it is expected that a move to commercial operation and larger cavities would increase this risk. That is, it is increasingly likely that over a length of several hundred metres gas migration pathways are formed by the collapse of the cavity roof.

A second risk is also created with respect to the final hydrological integrity of the cavity. Both Carbon Energy and Linc Energy have highlighted that the dry material overlying the cavity is an advantage because water ingress to the cavity is not important either in terms of the oxygen/water mix or the potential to drain overlying aquifers in commercial operations. However, neither Carbon Energy nor Linc Energy deal with the risk that a lack of integrity in the cavity roof may provide an escape pathway for contaminated water as the original groundwater pressure in the coal measures re-establishes following decommissioning (the local hydraulic head is above the level of the top of the cavity). Given that the overburden does not have the activated carbon or background coal capacity to adsorb pollutants (discussed further in Section 3.5.3) this is a potential pathway for their transport into the surrounding environment.

Neither of the company reports provided data to indicate that gases have been detected at the surface. All possible pathways should be examined including well and surface infrastructures to determine possible sources of any gases.

Therefore, the ISP concludes that for UCG to be safe in practice, the compromise of integrity of the overburden must pose no environmental threat. Undertaking UCG at significant depth (as per the recommendations in Section 5.2) would appear the easiest way to ensure this. An alternative would be to demonstrate that the stratum above the direct overburden is tight, not an aquifer and remains intact after gasification. There is no substitute for direct measurement coupled to a sound numerical model of the system, to demonstrate this.

#### 5.5.2 Coal activation and pollutant adsorption

Carbon Energy and Linc Energy present information on the importance of coal as an adsorptive medium for gasification products that may assist with risk limitation during decommissioning. Linc Energy provides adsorption isotherms for coal that has been thermally altered under laboratory testing conditions. The ISP notes that the university report presented on this carried a strong disclaimer regarding the inappropriateness of the use of the experimental results for interpreting behaviour of coal in a real gasifier (although within the report there appeared to be a counter statement). Nevertheless, the ISP is of the view that laboratory heating of Macalister is not a substitute for coal sampled from the wall of an actual cavity because the complexity of alteration conditions is greater than only thermal effects.

No significant attempt was made by either Carbon Energy or Linc Energy to compare the likely available adsorptive capacity of the decommissioned cavity wall with the likely production of pollutants. This information is significant and would have demonstrated to the ISP whether contaminant load and capacity may be expected to balance. Both Carbon Energy and Linc Energy did provide either simplistic models or initial results which suggested that the contaminant plume would be restricted to within a few hundred metres of the cavity, even under worse case scenarios. However, given the lack of knowledge surrounding the final contaminant profile, cavity volume, morphology, composition, amount of water to be removed for treatment and altered ground water flows; the ISP cannot accept these conclusions without more rigorous assessment (under multiple cavity conditions) by the UCG proponents.

Evidence of the effectiveness of decommissioning must be comprehensive and include:



1. A comprehensive detailed step-wise process flow for decommissioning that can convincingly demonstrate a completed panel (as envisaged in the proposed technology for both companies) is clean and environmentally safe in the long term.
2. A conceptual model/framework for decommissioning including all material and energy flows.
3. Validated numerical models and accompanying data for the decommissioning process. This must include as a minimum:
  - a. Convincing 3D estimates of the morphology and size of existing cavities;
  - b. Data from the existing cavities on the material properties of the cavity walls (coal seam, overburden and underburden);
  - c. Mass balance estimates of pollutant loads based on measurements;
  - d. Mass loading estimates of adsorption capacity of "activated" and nearby coal, i.e., coupling of measured isotherms with adsorptive capacity and loading of a water-filled cavity;
  - e. Measurements of critical pollutants and mass balances for the water and tar pollutants exiting the cavity via the production well.
  - f. Measurements of critical pollutants and mass balances for the water its constituents and tar pollutants exiting the cavity via the production well.

#### Conclusion

For the currently operating panels, Carbon Energy and Linc Energy should establish integrated shut down and clean up procedures to establish world's best practices for decommissioning a UCG cavity.

#### Specific Recommendation #4

No further panels should be ignited until the long term environmental safety provided by effective decommissioning is unambiguously demonstrated. Evidence of the effectiveness of decommissioning must be comprehensive.

## 5.6 Rehabilitation

Other than general definitions borrowed from the mining industry the pilot reports provided little information on rehabilitation. Therefore, this phase of the life cycle is yet to be assessed and no conclusions regarding adequacy of processes can be made.

### Specific Recommendation #5

The companies should immediately propose, test and establish acceptable and agreed processes and outcomes for rehabilitation.

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## 6 Coal Seam Gas and Underground Coal Gasification

The issue of overlapping tenure between CSG extraction and UCG was raised with the ISP. The essential issue is that CSG requires that groundwater pressure be reduced so that methane can desorb from the coal and make its way to extraction points. However, UCG requires that hydrostatic pressures be maintained at a minimum value to ensure the cavity growth is controllable and that contaminants cannot escape into the surrounding environment. Unfortunately, the minimum pressure of methane desorption is below that required to maintain a UCG gasifier.

The ISP does *not* consider that it has or that it should have the role of making a determination as to the legal situation regarding liabilities for water pressure under current legislation. This is the appropriate domain of lawyers not scientists.

### Pilot Trial Issue and Lesson Learned

A key issue is whether a UCG operation can be held responsible for the optimal operating condition of hydrostatic pressure. The Energy provided information on the drilling or control of local water pressure via injection wells. The Energy did not provide any information regarding design or drilling of suitable groundwater control technology. However, the risk assessment conducted by Carbon Energy Ltd. risk indicated that the use of injection wells to control the local groundwater pressure was a principle risk mitigation measure for multi-panel operation.

Whilst it is clear that both companies have learned the potential advantages for being responsible for hydrostatic pressure control, neither company has, as yet, provided sufficient convincing data that a certain set of water injection wells can be operated, particularly at the depth of coal that the ISP has suggested is a minimum for UCG to proceed. The ISP does note that the CSG industry has a large amount of coal seam co-produced water to dispose of and UCG could be one productive sink for this water.

### Conclusion

The ISP is of the view that no generalised buffer recommendation is technically sound. The distance between any active UCG gasifier and the nearest CSG well will be controlled by the details of the gasifier depth and pressure conditions and the rate of water injection required to meet the minimum pressure operating requirements.

The ISP concludes that there is no need for long-term liability concerns to be held for nearby (above, below or lateral from a UCG final cavity) CSG activities if:

1. environmentally safe decommissioning can be demonstrated; and
2. UCG operators are held responsible for the necessary operating hydraulic pressure conditions which, in turn, will define the minimum distance a CSG well can be under the specific conditions for any UCG gasifier.

### Specific Recommendation #6

The ISP recommends that any UCG operation should be licensed on the basis that it is responsible for maintaining and controlling all its operating conditions including maintenance of groundwater pressure.

The ISP makes this recommendation with the understanding that in principle a decrease in groundwater pressure by CSG could be interpreted as an impact of CSG and that therefore CSG should be responsible for establishing make good provisions. However, the ISP is of the opinion that groundwater pressure control is so inherently critical to the safe operation of UCG that to delegate responsibility in any way outside the operator would be irresponsible and transfer an unacceptable risk; legal wrangling should be set aside for a common sense acceptance of responsibility for critical operating conditions that are within the engineering capability of the UCG companies.

Further, the ISP recommends that the UCG operator should be responsible for ensuring that no products of gasification are transported to CSG wells. That is, in maintaining local groundwater pressure the UCG operator must ensure that diffusion of gasification products cannot occur across the local groundwater high. This is consistent with the ISP view that no contaminants should be permitted to escape the final cavity following gasification. The UCG companies have never expressed a view counter to this responsibility to the ISP.



## 7 Regulatory Environment

The regulatory environment establishes the criteria for the approval of a proposed UCG facility, stipulates monitoring requirements and guides operational priorities. The regulatory environment also drives the site investigation. To satisfy the intent of existing legislation and the aims of the agencies that administer the legislation, consideration should be given to the identification and understanding of the Acts and other Instruments of governance under which authority to explore and mine the coal, and to operate the UCG facility, is granted.

In Queensland, an application for a UCG facility is made under the *Mineral Resources Act 1989 (MRA)* and the *Environmental Protection Act 1994 (EPA)*. Although the *MRA* and the *EPA* most directly apply to the authorisation and regulation of a UCG facility, a number of other legislative instruments (such as cultural heritage and native title legislation) apply to the approval and operation of a UCG facility.

The majority of the relevant Acts are applicable to all aspects of mine related activities. These are listed below and must be understood and followed by the UCG proponent. However, a number of Acts may be confusing, misunderstood, or are considered of particular relevance to the UCG activity. These Acts will be detailed within this Guideline.

It should be noted that understanding the intent of the Legislation, and seeking clarification as necessary, will facilitate better performance, creative problem solving, success in satisfying Regulatory Authorities, and produce a proactive, rather than a reactive, approach to the problem solving situation.

### 7.1 Observations on policy and governance

Different parts of legislation contain sometimes conflicting or confusing definitions. An important example is *syngas*, which is petroleum under the meaning of the Petroleum Legislation and is a mineral under the meaning of the Mineral Resources Act 1989

Overlapping tenures can exist under Petroleum and Gas (Production and Safety) Act 2004 (P&G Act) and the Mineral Resources Act 1989. Existing legislative arrangements concerning rights to groundwater (e.g. dewatering) should be reviewed. An important example is that the operational parameters within the coal seam for CSG are incompatible with those for UCG. Where two different tenure applications for petroleum and mining do overlap, legislative arrangements are complex and

decision-making is complicated and necessarily on a case-by-case basis. Equally, legislation can hold certain operators responsible for groundwater changes that are ultimately controlled by a separate decision regarding a different development. For example, dewatering for an approved coal mine could result in groundwater pressure changes that a CSG company had been made responsible for that a UCG company then is impacted by.

UCG is a relatively new technology to Australia and is not widely practiced globally. Professional expertise and experience is not readily available. If the UCG industry can demonstrate environmental safety and community acceptance with economic viability, the eventual establishment of a UCG industry will require significant government and technical support. Currently, it is challenging for government to develop policy and for regulators to be as effective as they might because of a limited skills base. Further, there is little non-company research being undertaken. Independent research is required to ensure broad confidence in the significant questions that remain to be answered about UCG, particularly as a commercial activity. Research is also the foundation of a tertiary education institution's ability to effectively educate the necessary workforce for a new industry. The government should establish two new entities to ensure that if it is deemed acceptable to establish a UCG industry that it can be supported at the level necessary to ensure its best chance to be environmentally, socially and economically viable.

The Government should appoint a Queensland UCG Independent Assessment, Evaluation and Advisory Group<sup>5</sup> of persons with understanding of (a) the science behind the UCG process, (b) sufficient knowledge to predict problems that may occur, and (c) sufficient knowledge to discern solutions to unforeseen problems. Suggested components of terms of reference for the group are below.

- Reviews and monitors risk related issues (environment; safety etc) for UCG operations.
- Provides policy, legislative and regulatory information support for government.
- Honest broker between industry and government.
- Identifies research problems/targets from risk perspective and asks R&D network (see below) to develop responses.

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<sup>5</sup> To avoid any perceptions of conflict of interest, members of the ISP propose that they would be excluded from participating in the Advisory Group for a period of two years lest it be suggested this recommendation is an attempt by ISP to position for a future advisory role.

Important initial tasks with which the group could assist government and industry are:

- A UCG Policy should be constructed that adequately reflects the tenets of the Government's concerns and requirements.
- A set of clearly defined Guidelines should be constructed that are unambiguous and allow for variations in regional and local conditions.

A research and development programme, The Queensland UCG R&D Network<sup>6</sup>, should be initiated immediately and tied into international expertise. It is not envisaged that a large fund should be made available. The main aim initially is to bring together research capability so that government and industry can draw upon a network of expertise. Such a network would form an excellent base upon which industry and government could draw, in due course, for educators as well as researchers. Projects would then be funded on a case-by-case basis with contributions as the parties see fit. It is suggested that government mandate that the UCG companies, as part of their license to operate, contribute to establishment of the group to meet the administrative and networking costs, which should be ~\$1m p.a. Companies would also be required to participate in priority setting and communication of outcomes of activities of the network. State government would be encouraged to contribute in-kind and eventually financially to projects as the State budgetary situation improves over time. A number of alternative resourcing models for the network could also be explored, for example, the federal schemes for rural research, e.g., grains research and development corporation, or the Australian Coal Association research Program (ACARP), which is fully industry driven and funded.

#### Specific Recommendation #7

The government should establish two new entities to ensure that if it is deemed acceptable to establish a UCG industry that it can be supported at the level necessary to ensure its best chance to be environmentally, socially and economically viable.

1. Queensland UCG Independent Assessment, Evaluation and Advisory Group.
2. The Queensland UCG R&D Network.

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<sup>6</sup> To avoid any perceptions of conflict of interest, members of the ISP propose that they would be excluded from participating in the R&D network for a period of two years lest it be suggested this recommendation is an attempt by the ISP to position for future research.

## 8 Industry scale-up (multi-panel operations)

The ISP would like to highlight the lack of detailed data presented regarding the plans for multi-panel operation and commercial scale-up. The reports on the pilot trials show that no multi-panel operation has been carried out thus far. The panels that have been gasified, to a greater lesser extent, have been for the purpose of data gathering and experimentation. Whilst this is a suitable approach for a pilot trial, it appears to have followed an *ad hoc* design evolution rather than a systematic design evolution. It is therefore not possible for the ISP to assess the design for scale-up.

Significant issues remain to be dealt with including:

- the altered hydrogeology across a multi-panel site;
- the relationship between completed panels (cavities) and active gasifier(s);
- the potential for unacceptable odour production from multiple simultaneous gasifiers and the consequent need for a substantial distance buffer to potentially exposed neighbours;
- multi-panel design that avoids connectivity between final cavities and active, potentially contemporaneous, panels resulting in:
  - unacceptable surface subsidence;
  - groundwater transport of contaminant and wild fire because of loss of control of oxygen conditions; and
- the need for external injection of water to maintain the hydrostatic pressure across the site. It is clear that the observations made above on challenges associated with water injection to maintain hydrostatic pressure (see Section 5.5) are amplified considerably for multi-panel operations. Depending on the final design chosen it may indeed be necessary (and possible) to establish a minimum distance from a UCG *facility boundary* and other activities, e.g., CSG that require different hydrostatic operating conditions.

All of these design considerations will have significant implications towards multi-panel operation and commercial scale-up, site decommissioning and rehabilitation.

For commercial scale multi-panel operation, it is the opinion of the ISP that full consideration should also be given to critical systems (see Section 5.4.1.3) during the design phase. These systems should include temperature relief systems for the well head (i.e., water quenching / steam injection), gas detection for flammable and toxic gases, bund areas for excess process water or process liquids and fire protection systems. The ISP recognises that a further system of physical protection is the



establishment of an active zone around the cavity which may contain similar or lower levels of contamination in the ground water as is found inside the cavity due its intimate proximity.

#### Conclusions

Physical protection systems for a full scale multi panel operation should include temperature relief systems for the well head, gas detection for flammable and toxic gases, bund areas for excess process water or process liquids and fire protection systems.

Above ground and underground buffer or active zones be established as the final layer of physical protection once the final design for a multi-panel system is known.

The UCG proponents must establish acceptable and agreed decommissioning procedures before proceeding to the commercial phase of operation.

Multi-panel operation requires a full understanding of the site geology and hydrogeology. A systematic design of the multi-panel operation should be undertaken prior to the commencement of any commercial activities. It should not be undertaken 'on the fly' as the UCG site shifts from pilot to commercial production.

#### Specific Recommendation #8

No site should progress from pilot/demonstration to commercial multi-panel scale. A commercial operation must be designed as such from the outset on the foundation of well-established principles, i.e., a risk based approach from the outset for all phases of the life cycle of the multi-panel operation.

Neither the Carbon Energy nor the Linc Energy pilot sites meet these conditions. For example, at both sites the ISP concludes that the target coal is too close to the surface for commercial scale operations.

## 9 List of Recommendations

### 9.1 Overarching recommendations

Overarching recommendation #1: *The ISP recommends that the Queensland government permit Carbon Energy and Linc Energy to continue the current pilot trials with the sole, focused aim of examining in a comprehensive manner the assertion that the self-cleaning cavity approach advocated for decommissioning is environmentally safe.*

Overarching recommendation #2: *The ISP recommends that a fixed, strictly limited time period of six (6) months be allowed for the companies to undertake the necessary research and reporting on existing cavities that are not currently being gasified. It is the opinion of the ISP that if sufficient access to existing cavities cannot be achieved in that time then the design of the gasifiers is not sufficiently robust to conclude that the UCG process is socially acceptable and environmentally safe.\*(Note) In three (3) months each company must produce a detailed plan as to how and when the gasifiers that are currently producing gas will be decommissioned. These gasifiers are necessary for demonstration because none of the existing cavities represents a completed (or even near completed) full sized cavity.*

Overarching recommendation #3: *The ISP recommends that until decommissioning is demonstrated to be environmentally safe no commercial facility should be commenced. An exception to this would be if a proponent were to suggest very deep gasification where the consequences of a less than perfect decommissioning decommissioning may under certain conditions, be socially and environmentally acceptable.*

### 9.2 Specific recommendations

#### Specific recommendation #1

The government together with the UCG industry and an independent advisory body, should develop guidelines and standards for site selection. The ISP recommends that site selection is a process that should be preceded and informed by appropriate geological surveys, hydrogeological modelling and an assessment of the community and environmental context. Such assessments must serve as Go / No Go gates for decision to develop or not any site for UCG operation, i.e., any limiting factor should signal No Go for the site.

#### Specific Recommendation #2

The ISP recommends that for each new panel, the UCG industry adopts a 'commissioning' approach rather than 'start-up' or 'ignition' regardless of size or multiplicity, to reduce the risks associated with this phase. Commissioning should involve world's best practice for risk management in process industries including HAZOP, fault tree analysis, event tree analysis, LOPA including all the controls to ensure that the inherent risks of UCG activities are minimised from the outset.

**Specific Recommendation #3**

If the UCG reaction has been extinguished, then restarting the panel is not an appropriate option. The process should proceed directly to decommissioning and rehabilitation. Best practice decommissioning as per the risk-based approach outlined previously should be adopted.

**Specific Recommendation #4**

No further panels should be ignited until the long term environmental safety provided by effective decommissioning is unambiguously demonstrated. Evidence of the effectiveness of decommissioning must be comprehensive.

**Specific Recommendation #5**

The companies should immediately propose, test and establish acceptable and agreed processes and outcomes for rehabilitation.

**Specific Recommendation #6**

The ISP recommends that any UCG operation should be licensed on the basis that it is responsible for maintaining and controlling all its operating conditions including maintenance of groundwater pressure.

The ISP makes this recommendation with the understanding that in principle a decrease in groundwater pressure by CSG could be interpreted as an impact of CSG and that therefore CSG should be responsible for establishing make good provisions. However, the ISP is of the opinion that groundwater pressure control is so inherently critical to the safe operation of UCG that to delegate responsibility in any way outside the operator would be irresponsible and transfer an unacceptable risk; legal wrangling should be set aside for a common sense acceptance of responsibility for critical operating conditions that are within the engineering capability of the UCG companies.

Further, the ISP recommends that the UCG operator should be responsible for ensuring that no products of gasification are transported to CSG wells. That is, in maintaining local groundwater pressure the UCG operator must ensure that diffusion of gasification products cannot occur across the local groundwater high. This is consistent with the ISP view that no contaminants should be permitted to escape the final cavity following gasification. The UCG companies have never expressed a view counter to this responsibility to the ISP.

**Specific Recommendation #7**

The government should establish two new entities to ensure that if it is deemed acceptable to establish a UCG industry that it can be supported at the level necessary to ensure its best chance to be environmentally, socially and economically viable.

1. Queensland UCG Independent Assessment, Evaluation and Advisory Group.
2. The Queensland UCG R&D Network.

**Specific Recommendation #8**

No site should progress from pilot/demonstration to commercial multi-panel scale. A commercial operation must be designed as such from the outset on the foundation of well-established principles, i.e., a risk-based approach from the outset for all phases of the life cycle of the multi-panel operation.

Neither the Carbon Energy nor the Linc Energy pilot sites meet these conditions. For example, at both sites the ISP concludes that the target coal is too close to the surface for commercial scale operations.



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THE DISTRICT OF ...  
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Dear [REDACTED]

On 30 November 2012, the Independent Scientific Panel (ISP) for underground coal gasification (UCG) released its final report on the UCG pilot trials in Queensland. As a participant in the UCG pilot phase, I am writing to inform you of the outcome regarding the ISP's final report. A copy of the final report has been attached for your reference.

The report outlines the ISP's view that UCG could, in principle, be conducted in a manner that is socially acceptable and environmentally safe when compared with a wide range of other existing resource using activities. However, the ISP is not confident that the work to date on pilot trials in Queensland has demonstrated that UCG can be conducted, in practice, in a manner that is socially acceptable and environmentally safe.

Critically, the ISP has formed the view that the pilot trials have not gathered or provided sufficient scientific and technical information to demonstrate that the "self-cleaning cavity" approach to decommissioning is environmentally safe and sustainable. A successful "self-cleaning cavity" should result in a clean, non-polluting cavity and surrounding underground environment.

In order to demonstrate that the "self-cleaning cavity" technology is appropriately well designed, the ISP has identified that further work is required. This work would include accessing and sampling a gasified cavity to identify the current contents and surrounding materials, as well as gathering information on the condition of groundwater surrounding the cavity before and after decommissioning.

The ISP also identifies that little or no information has been provided in relation to site rehabilitation specific to the Queensland UCG context.

To address this shortfall of data, the ISP has made three overarching recommendations:

1. The ISP recommends that the Queensland Government permit Carbon Energy and Linc Energy to continue the current pilot trials with the sole, focused aim of examining, in a comprehensive manner, the assertion that the self-cleaning cavity approach advocated for decommissioning is environmentally safe.
2. The ISP recommends that a fixed, strictly limited time period of six months be allowed for the companies to undertake the necessary research and reporting on existing cavities that are not currently being gasified. It is the opinion of the ISP that, if sufficient access to existing cavities cannot be achieved in that time, the design of the gasifiers is not sufficiently robust to conclude that the underground coal gasification process is socially acceptable and environmentally safe. In three months, each company must produce a detailed plan as to how and when the gasifiers that are currently producing gas will be decommissioned. These gasifiers are necessary for demonstration because none of the existing cavities represents a completed (or even near completed) full sized cavity.

3. The ISP recommends that, until decommissioning is demonstrated to be environmentally safe, no commercial facility be commenced. An exception to this would be if a proponent were to suggest very deep gasification where the consequences of a less-than-perfect decommissioning may, under certain conditions, be socially and environmentally acceptable.

The government intends to implement the overarching recommendations in the ISP report. This would allow for the extension of the pilot trial period for a proposed six months with the sole, focused aim of examining in a comprehensive manner the assertion that the approach advocated for decommissioning and rehabilitation is environmentally safe. You will also be required to produce a detailed plan, within three months of the commencement of this trial, to advise the government how and when any remaining producing gasifiers will be decommissioned.

Clear criteria to demonstrate that the clean cavity approach can be achieved will be developed. I am advised that officers from the Department of Natural Resources and Mines, the Department of Environment and Heritage Protection, and the Department of Science, Information Technology, Innovation and the Arts will contact you in the near future to begin discussions on the trial's extension, its design of the criteria and the reporting requirements that will be necessary to demonstrate effective decommissioning for UCG.

Additionally, I note that specific Recommendation 5 of the ISP Report also relates to the activities of the trial projects. This recommendation states that the companies should immediately propose, test and establish acceptable and agreed processes and outcomes for rehabilitation. It is anticipated that you will propose processes and outcomes for the rehabilitation of your trial site as part of the detailed plans that will be required three months after the trial commences. These processes and outcomes will be assessed by the relevant government departments to ensure they are satisfactory.

If you have any questions regarding my advice to you, Mr Marcus Rees, Director, Land and Mines Policy, Department of Natural Resources and Mines, will be pleased to assist you and can be contacted on telephone 07 3224 7528.

Yours sincerely

**Andrew Cripps MP**  
**Minister for Natural Resources and Mines**

Enc.

**Sarah Partosh**

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**From:** The Premier  
**Sent:** Friday, 8 February 2013 6:06 AM  
**To:** The Premier

**Importance:** High

**Subject:**  
**Title:** Mrs  
**First Name:** s.73 Personal Information  
**Family Name:** [Redacted]  
**Email:**

-----  
**Address:** s.73 Personal Information  
**Town:** [Redacted]  
**State:** [Redacted]  
**Postcode:** [Redacted]  
**Email:**

-----  
**Comment:**

What are you doing to protect us and Queensland against coal seam gas.

Released under RTI - DPC

**Sarah Partosh**

---

**From:** s.73 Personal Information [redacted]@gmail.com>  
**Sent:** Wednesday, 13 February 2013 5:37 PM  
**To:** The Premier; [redacted]  
**Subject:** Looks similar to Qld

To the Premier,

I would hope you would watch this youtube, it shows the same stupidity your government supports in Queensland, the same corruption, the same spin. Honestly, how long do you think Australians will tolerate an obviously corrupt system.

<http://www.youtube.com/watch?v=gk1GHAo4ILk>

I would say shame on you Premier, you and your predecessors are a disgrace to your office.

It is too much to hope that you and your government grow a conscience and a soul, but at least be aware you have been shown the evidence and you chose to ignore it, be that on your own head, may you one day get to enjoy the inside of one of Queensland's jails, all of you.



Released under RTI - DPPG



**Sarah Partosh**

---

**From:** s.73 Personal Information [redacted]@bigpond.net.au>  
**Sent:** Wednesday, 13 February 2013 9:30 PM  
**To:** The Premier  
**Subject:** Re: Message for [redacted]

**Importance:** High

Hi Mr Campbell,

Your reply raised another thought. How much protection & due diligence is being carried out regarding coal seam gas production. Will we end up like America, & stuff our lovely land for the sake of a measly dollar. Because once you stuff it, that is it whilst man is here. We are very efficient in being brain surgeons only to say whoops!! ie. lets build our housing on swamps & inundation land, employ doctors without doing quality & efficient checking of their history. History tells me CSG is not looking good.

Kind Regards,

----- Original Message -----

**From:** The Premier  
**To:** [redacted]@bigpond.net.au  
**Sent:** Wednesday, February 13, 2013 3:24 PM  
**Subject:** Message for [redacted]

Please find attached a letter from the Office of the Premier.

Regards

Ministerial Officer  
Office of the Premier

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To view and print portable document format (PDF) files attached to this email, you can download the free [Adobe Reader](#)

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06.01.2013

Mr. Tony Abbott  
& Campbell Newman

Sirs,

The government making  
it will pay projects in  
the future past its  
term is the incoming  
one has to pay &  
continue if it does,  
and should not  
continue.

It is the wrong government  
governing. The past one!

06.01.2013

11-03-2013

Mr. Campbell Newman

& Tony Abbott

Sir,

We have, according to  
Julia Gillard, the  
mining tax, on it also

the carbon tax, and  
on it royalties paid

to the state! How

much of this is true,

and is she trying  
to get mining? money

from the STATE of Qld.???

11-03-2013 from [redacted]

Do royalties exist????

11-03-2013

Mr Campbell Newman  
& Tony Abbott

Sirs,

How are you going  
to overcome the lies  
about population  
now the old people  
keep dying and there  
are hardly any births??

11-03-2013



09.03.2013

Mrs. Campbell Newman  
& Tony Abbott

Sirs,

The government should  
not depend on com-  
modity prices getting  
higher to get inflation &  
more tax!

It should remain the  
same and no  
inflation and low  
interest rates.

I watch the pooling of  
moneys.

09.03.2013

08-03-2013

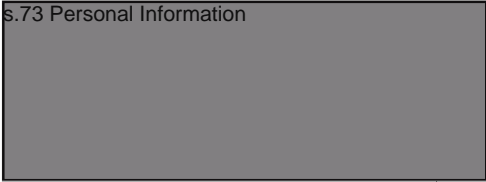
Mr. Tony Abbott  
& Campbell Newman

Sirs,

You want absolute accounts  
of what the Federal  
government has arranged  
to pay and from what  
address; and don't pay  
any you don't want  
to continue.

See!!

08-03-2013



07-03-2013

Mr. Tony Abbott  
& Campbell Newman  
Sir,

Developing <sup>not developed,</sup> Coal Seam Gas is  
not liquid gas which  
would be oil.

It is coal seams, and  
dirty.

Electricity is not dirty.



07-03-2013

Released Under the Information Privacy Act - DPC

06-03-2013

Mr. Tony Abbott  
& Campbell Newman

Siss,

Julia is going to go  
on growth & jobs.

Growth is there is  
hardly any new  
spending population,  
, & jobs are there  
are the same number  
of owner businesses,  
, and no spending  
increase is no jobs.

Go on something else.

He is onto super. They  
are not getting it. It's  
pie in the sky!



**Sarah Partosh**

---

**From:** s.73 Personal Information [redacted].com>  
**Sent:** Wednesday, 27 February 2013 10:09 AM  
**To:** The Premier; ashgrove@parliament.qld.gov.au; Moggill Electorate Office;  
tony.burke.mp@environment.gov.au  
**Subject:** Coal seam gas is leaking into the Brisbane River  
**Importance:** High

This is the beginning of an environmental disaster.

We cannot afford to poison our water supplies.

END CSG NOW!!

<https://www.facebook.com/photo.php?v=211917662285244&set=vb.26490605362369>

7

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[redacted]  
Email: [redacted].com  
Mobile: + [redacted]  
Landline: [redacted]  
Skype: [redacted]  
iChat: [redacted]

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# COAG Reform Council

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28 February 2013

The Hon Campbell Newman MP  
Premier  
PO Box 15185  
CITY EAST QLD 4002

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Dear Premier

On behalf of the COAG Reform Council, I am pleased to present our report, *National Partnership on Coal Seam Gas and Large Coal Mining Development: First assessment report*, prepared in accordance with clause C19 of the *Intergovernmental Agreement on Federal Financial Relations*.

In our first of two reports on this National Partnership, we have assessed whether the Commonwealth and States have met pre-determined milestones. We found the Commonwealth partially completed its milestone, NSW did not complete its milestone, Victoria and Queensland completed their milestones and South Australia partially completed its milestone.

We found that although the Commonwealth and South Australia did not meet the milestones by 30 October 2012, there was little risk to them subsequently completing the milestones.

The NSW and Commonwealth Governments have not agreed on NSW's draft protocol. It remains unclear how NSW will decide which projects to refer to the Independent Expert Scientific Committee for advice outside of land it has identified as 'Strategic Agricultural Land'.

Building on the lessons learned from this National Partnership, the council has made a recommendation to COAG aimed at improving the design of reporting arrangements for future National Partnerships.

Consistent with the council's reporting responsibilities, the council will publicly release this report in April 2013.

Yours sincerely

  
The Hon John Brumby  
Chairman

Performance reporting and  
accountability for national reform

# Coal Seam Gas and Large Coal Mining Development: First assessment report

Report to the Council of Australian Governments

28 February 2013



**Coal Seam Gas and Large Coal Mining Development: First assessment report**

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The appropriate citation for this Report is:

COAG Reform Council 2013, *Coal Seam Gas and Large Coal Mining Development: First assessment report*, COAG Reform Council, Sydney.



### About the COAG Reform Council

The COAG Reform Council has been established by the Council of Australian Governments (COAG) as part of the arrangements for federal financial relations. The council is independent of individual governments and reports directly to COAG.

The COAG Reform Council's mission is to assist COAG to strengthen the performance and public accountability of governments.

### COAG Reform Council members

The Hon John Brumby (Chairman)

Professor Greg Craven (Deputy Chairman)

Ms Patricia Faulkner AO

Mr John Langoulant AO

Ms Sue Middleton

Ms Mary Ann O'Loughlin AM (Executive Councilor and Head of Secretariat)

### Acknowledgements

The council would like to acknowledge the assistance of many people and organisations in preparing this report. The council received valuable input and feedback from officers of the Commonwealth and State governments in developing this report.

Released under RTI - DPC

## COAG Reform Council

28 February 2013

The Hon Julia Gillard MP  
Prime Minister  
Parliament House  
CANBERRA ACT 2600

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Yours sincerely



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Performance reporting and  
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## Table of contents

Key points	ix
Chapter 1. Introduction	1
1.1 National Partnership Agreement on Coal Seam Gas and Large Coal Mining Development	1
1.2 Reporting on progress	5
1.3 Outline of report	6
Chapter 2. Assessment: Commonwealth	7
2.1 Commonwealth milestone	8
2.2 Progress report and assessment	8
Chapter 3. Assessment: States	11
3.1 State milestones	12
3.2 Assessment: NSW	13
3.3 Assessment: Victoria	14
3.4 Assessment: Queensland	15
3.5 Assessment: South Australia	16
Chapter 4. Improving performance reporting	17
4.1 Challenges for assessing performance	17
4.2 Recommendation for future National Partnerships	18
Appendix A. Our method	19
Appendix B. Protocols for project referral	21
Appendix C. The Interim Independent Expert Scientific Committee	25
Appendix D. References	29
Appendix E. List of tables, figures and boxes	33

## Key points

### The National Partnership Agreement on Coal Seam Gas and Large Coal Mining Development aims to strengthen decision-making through independent advice

The Commonwealth Government is providing up to \$50 million in funding over three years to NSW, Victoria, Queensland and South Australia. Payments include \$20 million to implement reforms and \$30 million subject to the achievement of milestones.

This report assesses whether governments achieved the first round of milestones by 30 October 2012, for which in-arrears project payments are available for the States.

### The Commonwealth milestone is delayed and the NSW milestones are at risk

Government	Progress status	Risk status
Commonwealth	Milestone partially completed	Delayed
NSW	Milestone not completed	Milestone at risk
Victoria	Milestone completed	Milestone not at risk
Queensland	Milestone completed	Milestone not at risk
South Australia	Milestone partially completed	Milestone not at risk

The Commonwealth partially completed its milestone to establish the Independent Expert Scientific Committee (IESC) by 1 July 2012. It established an 'interim' committee and passed legislation to establish the IESC, but had not appointed the IESC by 30 October 2012.

The States agreed to publish a protocol that describes how they will decide which project applications should be referred to the IESC for advice.

- Victoria and Queensland did this by 30 September 2012.
- South Australia's protocol commenced on 30 September 2012, however it was not publicly available on the South Australian Government's website by 30 October 2012.
- NSW had not published a protocol by 30 October 2012.

The NSW and Commonwealth Governments have not agreed on NSW's draft protocol. It remains unclear how NSW will decide which projects to refer to the IESC for advice outside of land it has identified as 'Strategic Agricultural Land'.

We have made a recommendation to COAG for future National Partnerships to:

- ensure that where responsibility for a milestone is shared, this is reflected in the allocation of milestones in the agreement
- ensure consistency between future milestones or benchmarks and any current milestones or benchmarks they are dependent upon.

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## Chapter 1. Introduction

The National Partnership Agreement on Coal Seam Gas and Large Coal Mining Development (the National Partnership) is an agreement between the Commonwealth, NSW, Victorian, Queensland and South Australian governments.

This report assesses the achievement of performance benchmarks (targets) linked to 'in-arrears project payments' for each State under the National Partnership. This is the council's first of two assessment reports for this National Partnership.

This chapter provides an overview of:

- Coal Seam Gas (CSG) in Australia
- the context, structure and funding of the National Partnership
- the council's approach to assessing performance
- the structure of the report.

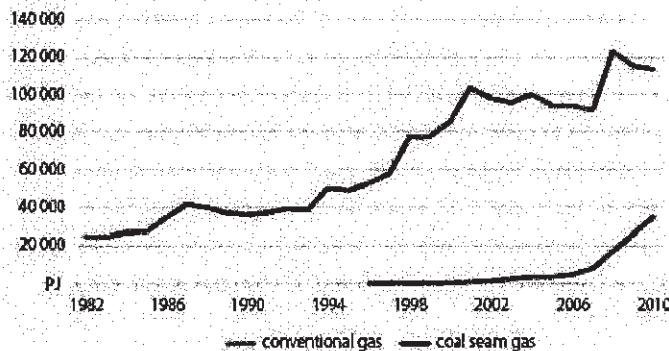
### 1.1 National Partnership Agreement on Coal Seam Gas and Large Coal Mining Development

#### Coal Seam Gas in Australia

The National Partnership demonstrates an interest by participating governments in the sustainable development of CSG and coal mining industries, given their potential contribution to Australia's energy security and balance of international trade (COAG 2012, cl. 2).

Australia's CSG reserves that have been identified as profitably extractable have been increasing in recent years up to around 35 000 petajoules (PJ) at latest estimates (Figure 1.1). Estimates suggest a further 65 000 PJ could become economically viable in the future and there are even larger estimates of inferred (122 000 PJ) and potential (259 000 PJ) CSG resources (DRET, GA *et al.* 2012, p. 17).

**Figure 1.1** Australia's economically viable gas resources (petajoules)



Source: (BREE 2012, p. 15).



The Commonwealth Government's 2012 Energy White Paper set out a policy framework to strengthen Australia's long-term energy security and to further expand energy exports to meet growing global demand for energy (DRET 2012).

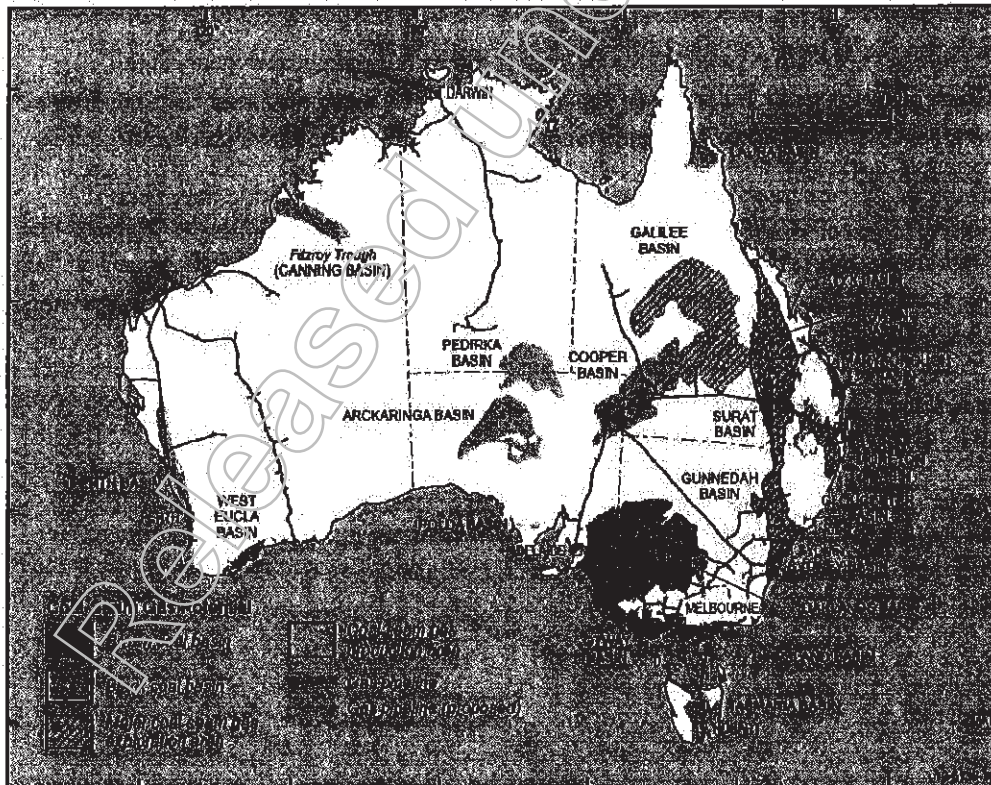
The International Energy Agency's 2012 World Energy Outlook found that natural gas was the only fossil fuel for which global demand grows in all scenarios, noting strong demand growth in China, India and the Middle East (IEA 2012). Australia will play a role in meeting this demand growth through conventional gas as well as CSG exports.

CSG is a relatively new source of energy in Australia, with Queensland producing CSG from the Bowen Basin only since 1997 (CSIRO 2012). CSG is an increasingly important source of natural gas. In the five years to 2010–11, CSG production increased from 2% to 11% of Australia's total gas production (SCER 2012). Queensland led this growth, where around 2400 CSG production wells supply 90% of the State's gas needs (APPEA 2012; DEHP 2012).

NSW production is currently limited to AGL's Camden Gas Project, which supplies approximately 6% of NSW's gas needs (NSW Trade & Investment 2012). Exploration for CSG in Victoria and South Australia is at an early stage and there is currently no CSG production in either of those states (DMITRE 2012; O'Brien MP 2012).

Figure 1.2 shows the current CSG exploration and production areas in NSW and Queensland.

Figure 1.2 Australian basins with coal seam gas potential



Source: (DRET, GA *et al.* 2012, p. 37).

### Strengthening decision making on new CSG and coal mining developments

In the context of growing CSG activity in Queensland and exploration in NSW, communities have expressed concerns about potential environmental impacts of new developments. These include concern over the volume of water produced as a by-product of CSG extraction and the possible contamination of fresh water aquifers.

State and Territory governments are primarily responsible for the regulation and licensing of the coal seam gas and coal mining industries. The role of the Commonwealth Government in regulating coal seam gas and coal mining proposals focuses on proposed projects which could have a significant impact on matters protected by the *Environment Protection and Biodiversity Conservation Act 1999* [Cwlth]. This includes matters of national environmental significance, actions involving the Commonwealth and actions on Commonwealth land (IESC 2012b).

The National Partnership aims to strengthen the regulation of CSG and large coal mining development by ensuring that future decisions are informed by substantially improved science and independent expert advice (COAG 2012, cl. 10).

The Commonwealth Government is providing \$150 million to establish an Independent Expert Scientific Committee and fund scientific research on the potential water-related impacts of coal seam gas and large coal mining activities (IESC 2012d).

#### Objectives and outcomes

The three priority areas for strengthening decision making are:

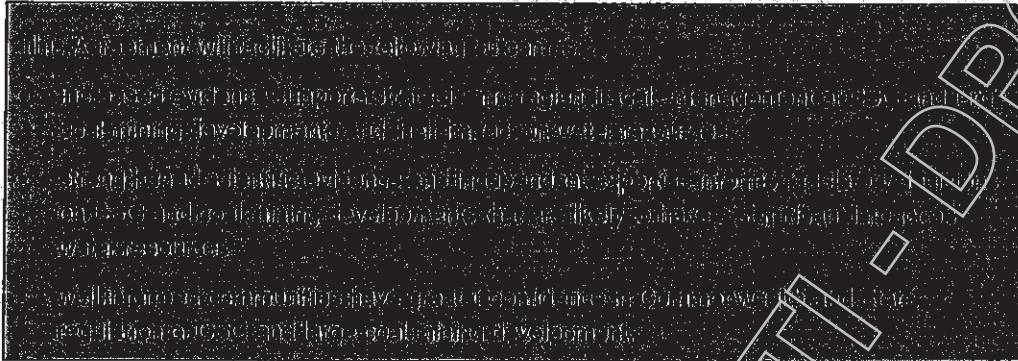
- more closely identifying potential and actual impacts on water resources, and supporting Parties to avoid or minimise significant impacts through a transparent process that builds public confidence
- substantially improving governments' collective scientific understanding of the actual and potential effects of CSG and coal mining developments on water resources
- ensuring that the best scientific information and expertise underpins all relevant regulatory processes and decisions (COAG 2012, cl. 4).

The National Partnership shows a mutual interest by participating governments in the long term health, quality and viability of Australia's water resources (COAG 2012, cl. 2).

The Parties to the National Partnership 'acknowledge public concerns about the actual and potential impacts of CSG and coal mining activities on water resources and agree there is a critical need to strengthen the science that underpins the regulation of these industries' (COAG 2012, cl.3).

Box 1.1 outlines the outcomes of this National Partnership.

**Box 1.1 Outcomes of the National Partnership**



Source: (COAG 2012, cl. 10–11).

**Roles and responsibilities of each party**

The key role of the Commonwealth is ‘establishing and maintaining the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining (IESC) under the *Environment Protection and Biodiversity Conservation Act 1999* [Cwlth]’ (COAG 2012, cl. 14 (c)).

The key responsibilities of the States include amending relevant laws, regulations and guidelines as necessary so that the laws provide the following outcomes:

- CSG or coal mining developments that are likely to have a significant impact on water resources are referred to the IESC for advice
- decision makers on applications which have been referred to the IESC take account of the IESC’s advice in a transparent manner (COAG 2012, cl. 15).

**Funding**

The National Partnership provides for funding through ‘in-advance’ and ‘in-arrears’ project payments. The total funding is \$50 million from 2011–12 to 2013–14 (COAG 2012).

**Table 1.1 Funding under the National Partnership**

Funding component	Commonwealth funding to States	Timing
In-advance project payment	\$20 million	2011–12
In-arrears project payment	\$10 million (maximum available)	2012–13
In-arrears project payment	\$20 million (maximum available)	2013–14

**Notes:**

1. 50% of the \$50 million is allocated to States on an equal per capita basis. 25% is allocated based on the relative distribution of coal production. 25% is allocated according to the relative distribution of CSG development.

Source: (COAG 2012, Table 1).



## 1.2 Reporting on progress

### Performance milestones and benchmark

Under the National Partnership, the Commonwealth has agreed to meet one milestone and the States have agreed to meet two milestones and one benchmark. Box 1.2 outlines the milestones and benchmark.

#### Box 1.2 National Partnership on Coal Seam Gas and Large Coal Mining Development: performance milestones and benchmark

<p><b>Commonwealth milestone</b></p> <p>By 31 July 2012 the Commonwealth will establish the</p>
<p><b>State milestones</b></p> <p>By 30 September 2012 each State will publish a plan for the use of coal seam gas and large coal mining developments that are likely to have a significant impact on water resources, in accordance with the National Partnership Agreement.</p> <p>By 30 March 2013 the States will enter into a regulation, regulation and guidelines in accordance with their role in the</p>
<p><b>State benchmark</b></p> <p>During the period between the publication of proposals and the finalisation of laws, regulations and guidelines under clause 15(b), the States refer all project applications for GSD or coal mining developments that are likely to have a significant impact on water resources, to the ESC for advice.</p>

Source: (COAG 2012, cl. 18-19).

### Assessment approach

Our role is to independently assess the degree to which the Commonwealth and participating States have met agreed milestones and the benchmark (COAG 2012, cl. 22). We do not make recommendations on whether payments are to be made under the National Partnership.

We will report within three months of receiving reports from governments (not counting January). This includes one month for the council to consult with governments on a draft report.

Our performance assessments draw on a range of inputs, including:

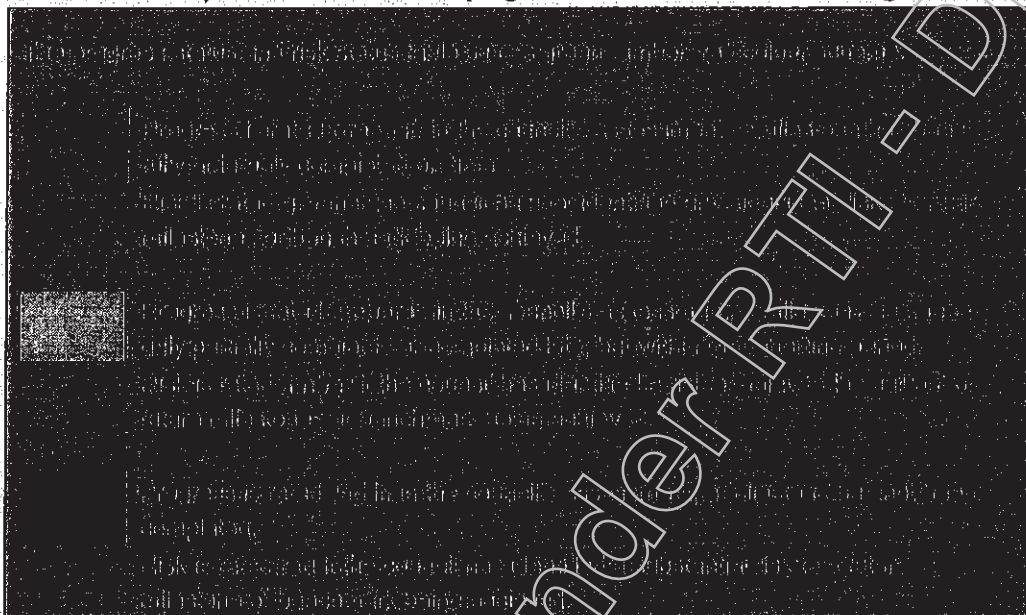
- independent research on the relevant activities of governments, based on publicly available information
- detailed progress reports and formal comments provided by governments
- additional information we request from governments to assist the assessment process (such information is treated as an addendum to government progress reports).



For this report, we assess the progress governments have made in achieving their milestones up to the date they reported on progress (30 October 2012). Progress since 30 October 2012 is included in an update on milestones—published with this report.

Box 1.3 explains how we show progress in the assessment tables.

**Box 1.3 Explanation of milestone progress status and risk status ratings**



**Risk assessment**

We conclude the sections on progress with a risk assessment. We assess whether there are any risks to governments achieving any outstanding milestones or future milestones.

**1.3 Outline of report**

In Chapter 2 we assess the progress of the Commonwealth Government against its milestone.

In Chapter 3 we assess the progress of the State governments against the State milestones.

In Chapter 4 we outline two lessons on improving the performance reporting framework.

There are also five appendices:

- Appendix A outlines our method of assessment
- Appendix B covers State protocols for project referral to the IESC
- Appendix C covers the Interim IESC
- Appendix D lists the references used in this report
- Appendix E lists the tables, figures and boxes used in this report.

## Chapter 2. Assessment: Commonwealth

### Key Points

Government	Progress status	Risk status
Commonwealth	Milestone partially completed	Delayed

### Commonwealth milestone

By July 2012 the Commonwealth will establish the Interim Independent Expert Panel Committee on Coal Seam Gas and Large Coal Mining Development (IEPC).

### Progress assessment

The Commonwealth had partially completed this milestone by 30 October 2012.

The Commonwealth established an interim committee on 20 December 2011. The interim committee met seven times from January to July 2012 and publicly advised on 14 projects.

The Commonwealth introduced legislation to establish the committee on 22 March 2012. The legislation received assent on 24 October 2012. However, the Commonwealth had not formally established the committee by 30 October 2012.

The Commonwealth advised that it will be able to appoint the Chair and members of the statutory committee following proclamation of the legislation.

### Risk assessment

Although it will be late, we have not identified any significant risks to the Commonwealth achieving this milestone.

## 2.1 Commonwealth milestone

There is one milestone for the Commonwealth for the first assessment report.

### Box 2.1 Commonwealth milestone



Source: (COAG 2012, cl. 14, 18).

The purpose of the IESC is to:

improve the science base in relation to the interaction of coal seam gas (CSG) and large coal mining developments and water resources; and

provide Commonwealth, State and Territory Governments with expert scientific advice relating to CSG and large coal mining development proposals that are likely to have a significant impact on water resources (COAG 2012, Schedule 1).

## 2.2 Progress report and assessment

### The Interim Independent Expert Scientific Committee

On 20 December 2011, the Commonwealth Minister for Sustainability, Environment, Water, Population and Communities, the Hon Tony Burke MP, appointed an Interim Committee to operate until governments agreed the National Partnership and appointed a permanent committee. The Minister announced the establishment of the Interim Committee on 27 January 2012 (Burke MP 2012).

The terms of reference set out that the Commonwealth Minister will determine the composition of the Interim Committee. The Interim Committee, comprising four to six members, will operate only until the committee has been established (IIESC 2012e).

By 30 October 2012, the Interim Committee had met seven times and held two online meetings. It publicly advised on 14 projects. It has advised on nine further projects but the advice has not yet been published and it has received requests for advice for a further six projects. The Interim Committee also identified six initial research themes and has overseen the initial stages of the bioregional assessment program (IIESC 2012c).

The Interim Committee drafted Information Guidelines to provide the signatory States with guidance on the supporting information the committee would find useful in considering proposals (Commonwealth Government 2012).

Appendix C provides more information on the Interim IESC.

### **Legislation to establish the Independent Expert Scientific Committee**

On 22 March 2012, Minister Burke introduced the *Environment Protection and Biodiversity Conservation (Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development) Amendment Bill 2012* (the Bill) to the House of Representatives (Parliament of Australia 2012).

The Bill passed both houses of Parliament and subsequently received assent on 24 October 2012 (Parliament of Australia 2012).

The law amends the *Environment Protection and Biodiversity Conservation Act 1999* [Cwlth] (EPBC Act) to allow for the establishment of the IESC as a statutory body. The law also amends the EPBC Act to require the Commonwealth Environment Minister to seek the committee's advice, and to take account of that advice under specified circumstances.

The committee must provide its scientific advice within 2 months of a request by the Environment Minister or by an appropriate minister of a State or Territory that is a signatory to the National Partnership.

The committee's role is advisory only and it has no responsibility for issuing approvals for projects or recommending whether a project should or should not be approved.

To improve community confidence and ensure future decision makers have access to the latest scientific information, it is intended that all the committee's scientific advice will be made publicly available.

The Commonwealth advised that it expected proclamation to occur in November 2012. It will be able to appoint the Chair and members of the statutory committee following proclamation.

### **Progress assessment**

The Commonwealth had partially completed this milestone by 30 October 2012.

### **Risk assessment**

Although it will be late, we have not identified any significant risks to the Commonwealth achieving this milestone.



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## Chapter 3. Assessment: States

### Key Points

Government	Progress status	Risk status
NSW		
Victoria	Milestone completed	No significant risks identified
Queensland	Milestone completed	No significant risks identified
South Australia	Milestone partially completed	No significant risks identified

### State milestone

By 30 September 2012 each State will publish a protocol that defines how they will decide which project applications should be referred to the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (IESC) for advice in accordance with the terms of its agreement.

#### NSW

NSW had not completed the milestone by 30 October 2012.

The NSW and Commonwealth Governments have not agreed on NSW's draft protocol. It remains unclear how NSW will decide which projects to refer to the IESC for advice outside of land it has identified as 'Strategic Agricultural Land'.

#### Victoria

Victoria completed the milestone on 30 September 2012.

We have not identified any significant risks to Victoria achieving the future milestones.

#### Queensland

Queensland completed the milestone on 30 September 2012.

We have not identified any significant risks to Queensland achieving the future milestones.

#### South Australia

South Australia had partially completed the milestone by 30 October 2012.

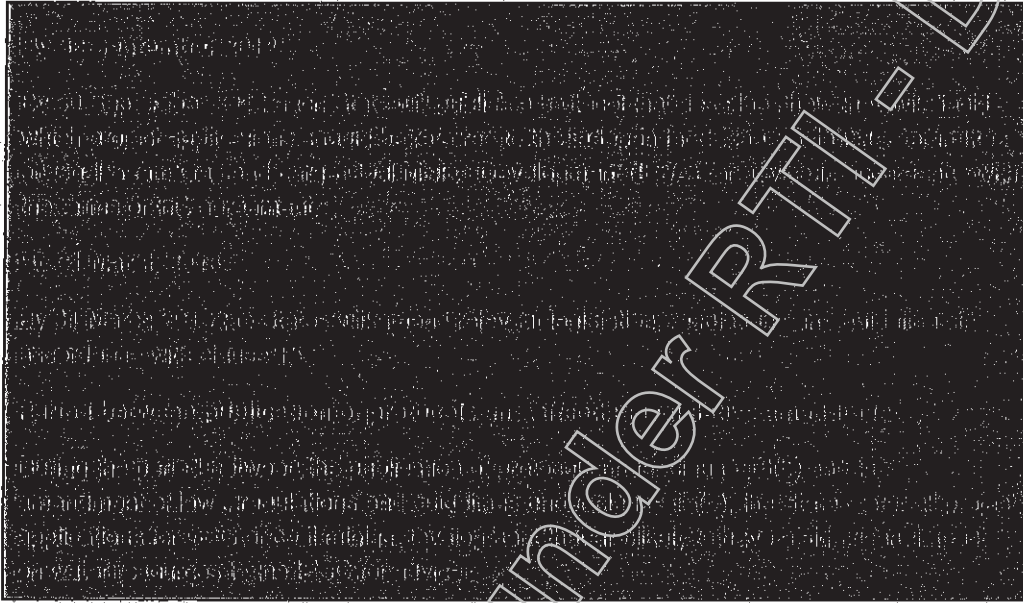
We have not identified any significant risks to South Australia achieving this milestone or future milestones.

### 3.1 State milestones

Box 3.1 sets out the two milestones and one benchmark for States under the National Partnership.

We assess the 30 September 2012 milestone in this report.

#### Box 3.1 State milestones and benchmark



Source: (COAG 2012, cl. 15, 18, 19).

### 3.2 Assessment: NSW

Government	Progress status	Risk status
NSW		

#### NSW protocol for referral of projects to the IESC

On 7 March 2012, NSW signed the National Partnership.

In September 2012, the NSW Government announced the Strategic Regional Land Use Policy and the Aquifer Interference Policy. These two policies provide the framework for managing the effects of coal seam gas and large coal mining projects in NSW. The NSW Government advised that its protocol for referring projects to the IESC will draw substantially from these two policies (NSW Government 2012).

These policies are available at: [www.nsw.gov.au/strategicregionallanduse](http://www.nsw.gov.au/strategicregionallanduse)

The NSW Government reported that it proposed a draft protocol to the Commonwealth on 27 September 2012. It entered into negotiations with the Commonwealth in order to finalise a protocol which would be acceptable to both parties.

Agreement had not been reached and NSW had not published a protocol for project referral by 30 October 2012.

#### Progress assessment

NSW had not completed this milestone by 30 October 2012.

#### Risk assessment

The Commonwealth and NSW Governments have not reached agreement on the content of the NSW protocol for project referral.

This delay may defer the provision of project applications to the IESC for advice until the protocol is published. We will report on this in our next assessment report.

The delay will also affect the period to which the benchmark to refer all project applications to the IESC for advice before amending legislation, regulations and guidelines applies.

The Strategic Regional Land Use Policy provides some guidance on how NSW will use a 'gateway' process to refer projects to the IESC. We have not identified any risks to NSW amending legislation, regulations and guidelines in line with this Policy.

However, it remains unclear how NSW will decide which projects to refer to the IESC for advice outside of land it has identified as 'Strategic Agricultural Land'.



### 3.3 Assessment: Victoria

Government	Progress status	Risk status
Victoria		

#### Victorian protocol for referral of projects to the IESC

On 5 June 2012, Victoria signed the National Partnership.

Victoria's protocol for project referral commenced on 30 September 2012.

In brief, the protocol requires the Victorian Department of Planning and Community Development to seek advice from the IESC for any project proposing to extract coal seam gas or to develop or to expand a coal mine that:

- could have a significant impact on water resources
- requires an Environmental Effects Statement under the *Environment Effects Act 1978* (Vic) (Victorian Government 2012).

Victoria's protocol is publicly available at:

[www.dpcd.vic.gov.au/planning/environment-assessment/useful-documents](http://www.dpcd.vic.gov.au/planning/environment-assessment/useful-documents)

Appendix B sets out Victoria's protocol for project referral in further detail.

#### Progress assessment

Victoria has completed this milestone.

#### Risk assessment

Victoria did not report any risks to amending legislation, regulations and/or guidelines where necessary by 31 March 2013.

Victoria did not report any risks to providing the IESC with all relevant project applications in the period in between the publication of protocols and the amendment of laws, regulations and/or guidelines.

Victoria reported that no projects meeting the criteria have sought approvals in Victoria since the National Partnership was signed. Accordingly as at 30 October 2012, Victoria had not referred any projects to the IESC.

We have not identified any risks to Victoria achieving future milestones.

### 3.4 Assessment: Queensland

Government	Progress status	Risk status
Queensland		

#### Queensland protocol for referral of projects to the IESC

On 14 February 2012, Queensland signed the National Partnership.

Queensland's protocol for project referral commenced on 1 October 2012.

In brief, the protocol requires Queensland government officers to refer a proposal if it is:

- a 'project application' (that it requires an Environmental Impact Statement (EIS))
- 'likely' to have a 'significant impact on water resources'.

This protocol will be applied to all proposals for which an EIS evaluation/assessment report has not been completed. In considering a referral to the IESC, the decision maker should also consider the extent to which assessment has been completed for those projects for which the EIS evaluation/assessment report is near the final stages of preparation prior to 1 January 2013 (Queensland Government 2012).

Based on advice from the Queensland Government, this transitional arrangement is unlikely to apply to any projects between 30 September 2012 and 1 January 2013.

Appendix B sets out Queensland's protocol for project referral in further detail.

Queensland's protocol is publicly available at:

[www.dsdip.qld.gov.au/assessments-and-approvals/significant-projects.html](http://www.dsdip.qld.gov.au/assessments-and-approvals/significant-projects.html)

#### Progress assessment

Queensland has completed this milestone.

#### Risk assessment

Queensland did not report any risks to amending legislation, regulations and/or guidelines where necessary by 31 March 2013.

Queensland did not report any risks to providing the IESC with all relevant project applications in the period in between the publication of protocols and the amendment of laws, regulations and/or guidelines.

As at 30 October 2012, Queensland had not referred any projects to the IESC.

We have not identified any risks to Queensland achieving future milestones.

### 3.5 Assessment: South Australia

Government	Progress status	Risk status
South Australia	Milestones partially completed	Medium

#### South Australian protocol for referral of projects to the IESC

On 22 March 2012, South Australia signed the National Partnership.

On 24 September 2012, the Government of South Australia approved the *South Australian Protocol for the Referral of Project Applications to the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development* (the South Australian protocol).

The South Australian Acting Minister for Water and the River Murray and the South Australian Minister for Mineral Resources and Energy both signed the South Australian protocol, forming public policy for all new coal seam gas or large coal mining projects.

On 27 September 2012, the Premier of South Australia wrote to the Prime Minister inviting the Commonwealth Minister for Sustainability, Environment, Water, Population and Communities to co-sign the South Australian protocol (South Australian Government 2012).

Although not required under the National Partnership, South Australia advised it was awaiting signature of the protocol by the Commonwealth Minister before publishing the final version (South Australian Government 2012).

In brief, the protocol requires the relevant South Australian regulatory authority to refer a proposal to the IESC for advice if it determines that it is likely that the proposed development will result in any potential significant impacts to water resources occurring. Appendix B sets out South Australia's protocol for project referral in further detail.

#### Progress assessment

South Australia had partially completed this milestone by 30 October 2012.

Although South Australia's protocol for project referral had commenced, it was not publicly available on the South Australian Government's website.

#### Risk assessment

South Australia did not report any risks to amending legislation, regulations and/or guidelines where necessary by 31 March 2013.

South Australia did not report any risks to providing the IESC with all relevant project applications in the period in between the publication of protocols and making the amendments.

As at 30 October 2012, South Australia had not referred any projects to the IESC.

We have not identified any risks to South Australia achieving this or future milestones.

## Chapter 4. Improving performance reporting

### 4.1 Challenges for assessing performance

This National Partnership provides two important lessons for the design of reporting arrangements for future National Partnerships. We have summarised these below.

#### Allocating responsibility

Clause 18(b) of the National Partnership sets out the first milestone for the States:

by 30 September 2012 each State will publish a protocol that describes how they will decide which project applications should be referred to the IESC for advice in accordance with the terms of this agreement (COAG 2012, cl. 18(b)).

This milestone does not reflect how the protocol process worked. It attributes responsibility solely to the States whereas the Commonwealth has been involved in settling the content of the protocols. Some States waited until the Commonwealth confirmed the protocols were consistent with the terms of the National Partnership before publishing.

Clause 14(b) sets out one of the roles and responsibilities of the Commonwealth as:

monitoring and assessing the performance in the delivery of actions under this Agreement to ensure that outputs are delivered and outcomes are achieved within the agreed timeframe (COAG 2012, cl. 14(b)).

This clause demonstrates an intent for the Commonwealth to work with the States to ensure the protocols are consistent with the terms of the National Partnership and are delivered on time.

Allocating responsibility for this milestone to the States alone does not take account of the practical role of the Commonwealth.

#### Clearly specifying timeframes for performance benchmarks

The States agreed to meet one benchmark under the National Partnership:

during the period between the publication of protocols under clause 18(b) and the amendment of laws, regulations and guidelines under clause 15(b), the States refer all project applications for CSG or coal mining developments that are likely to have a significant impact on water resources to the IESC for advice (COAG 2012, cl. 19).

This benchmark is unclear on the appropriate treatment where the publication of protocols occurred after 30 September 2012. For instance, if a government did not publish its protocol until 1 February 2013, this benchmark would only be assessed from 1 February 2013 until the amendment of laws, regulations and guidelines.



This benchmark seems to be structured inconsistently with the apparent intent of the agreement. The reporting arrangements section of the National Partnership sets out that States report to the COAG Reform Council by 30 April 2013 on:

their performance in referring relevant project applications to the IESC for advice in the period between 1 October 2012 and effecting legislative amendment (COAG 2012, cl 20 (b) ii).

This discrepancy leaves the council in a position where States will report on their performance in referring project applications to the IESC for advice from 1 October 2012, but the council will only assess performance in referring projects after protocols have been published.

For States that were late in publishing protocols, this will reduce the timeframe during which the council will be able to assess the performance benchmark.

#### 4.2 Recommendation for future National Partnerships

Given the experience of this National Partnership, it is important that future National Partnerships give greater consideration to the practical operation of the agreement in setting milestones and performance benchmarks.

We have made a recommendation to COAG for future National Partnerships based on these lessons.

##### Box 4.1 Recommendation

The COAG Reform Council should recommend that future National Partnerships should ensure that the reporting arrangements section of the agreement clearly sets out the reporting requirements for the council, including the timeframe for reporting and the information to be provided. The council should also recommend that future National Partnerships should ensure that the reporting arrangements section of the agreement clearly sets out the reporting requirements for the council, including the timeframe for reporting and the information to be provided.

## Appendix A. Our method

This appendix describes our reporting method.

### Our publication timeframes and consultation

For our National Agreement reports, we report three months after receiving performance information (not including January). We have adopted this approach for reporting on the *National Partnership Agreement on Coal Seam Gas and Large Coal Mining Development* (the National Partnership).

Governments' performance information was due to us on 30 October 2012 and we have reported to COAG on 28 February 2013.

On 7 December 2012, we released the draft report for one month of consultation (not including January), as required by the Intergovernmental Agreement on Federal Financial Relations. We also held bilateral meetings with each participating government during this period to discuss the draft report.

### Reporting period and interpreting deadlines

Our first report includes our assessment of activity on progress against milestones due to be completed by 1 July 2012 (the Commonwealth) and by 30 September 2012 (the States). Our deadline for governments to report their progress was 30 October 2012, and for our progress assessment we have not considered any activity that may have occurred after this deadline.

### Update on milestones

In the event governments have made significant progress against incomplete milestones covered in this report, we may release a supplementary update at the same time as we publicly release the report. The update will note any substantive progress against incomplete milestones since the reporting cut-off date of 30 October 2012.

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## Appendix B. Protocols for project referral

This appendix sets out the protocols for project referral from the States to the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (IESC).

Box B.1 sets out the key elements of Victoria's protocol for project referral.

### Box B.1 Victoria's protocol for project referral to the IESC

Any relevant project or proposal which seeks approval to extract coal seam gas, develop a new coal mine or expand an existing approved coal mine that could have a significant impact on water resources will be referred to the Minister in preparation for a decision on the project to the Environmental Effects Statement (EES).

The EES process provides for the analysis of potential impacts on environmental assets and the means of avoiding, minimising and remedying those impacts. It includes public involvement and the opportunity for interested parties to make submissions.

The Minister will require an EES for every project that the Minister considers should significantly affect the environment.

The requirements for an EES are set out in the Environmental Effects Statement Act 2012.

The Department of Planning and Community Development will seek advice from the IESC on any project or proposal that is referred to the Minister to develop a new coal mine or expand an existing coal mine that could have a significant impact on water resources and a request for an EES under the *Environmental Effects Act 2012*.

The advice will be a timely advice on suitable and sufficient mitigation and remediation measures relating to direct and indirect effects on water resources as well as assessment of potential cumulative impacts on water resources. Information created by the proponent.

The Minister

will take into account advice received from the IESC in preparing his/her assessment of the project and its potential effects on relevant matters.

and will prepare for relevant findings and recommendations in his/her assessment in the context of the IESC's advice.

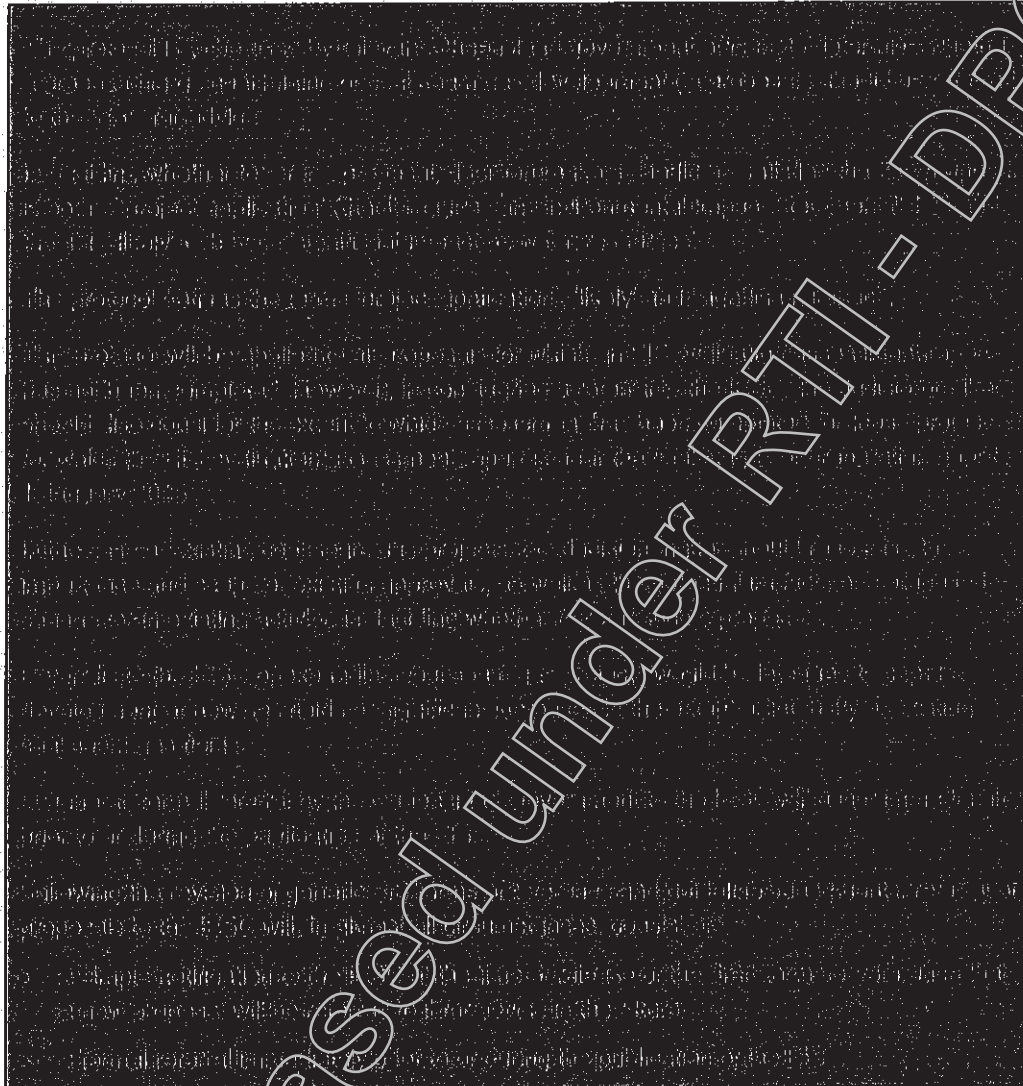
The Department will take into account any advice received from the IESC in response to draft or final EES documentation. It will do this with regard to a decision as possible and in a way of public exhibition for the EES. Any further advice from the IESC that is considered by the Minister in preparing his/her assessment is to be released with the Minister's assessment.

Source: (DPCD 2012a; 2012b).



Box B.2 sets out the key elements of Queensland's protocol for project referral.

**Box B.2 Queensland's protocol for project referral to the IESC**



Source: (DSDIP 2012).



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## Appendix C. The Interim Independent Expert Scientific Committee

This appendix provides further information on the Interim Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (Interim Committee).

### The Interim Independent Expert Scientific Committee

On 27 January 2012, the Minister for Sustainability, Environment, Population, Water and Communities, the Hon Tony Burke MP, announced the establishment of the Interim Committee and its members (Burke MP 2012). The Interim Committee will operate only until such time as the IESC has been established. Box C.1 sets out the Interim Committee members.

#### Box C.1 Interim IESC members

<p><b>Professor Craig Simmons (Chair)</b> Professor Simmons is a professor of hydrogeology at Curtin University and Director of the National Centre for Groundwater Research and Training.</p>
<p><b>Professor John Longford</b> Professor Longford is a professor of hydrogeology at the University of Queensland and a past president of the International Association of Hydrogeologists.</p>
<p><b>Professor Ian Gordon</b> Professor Gordon is a professor of hydrogeology at the University of Queensland and a past president of the International Association of Hydrogeologists.</p>
<p><b>Professor Graham Hume</b> Professor Hume is a professor of hydrogeology at the University of Queensland and a past president of the International Association of Hydrogeologists.</p>
<p><b>Associate Professor David Lawrence</b> Associate Professor Lawrence is a professor of hydrogeology at the University of Queensland and a past president of the International Association of Hydrogeologists.</p>
<p><b>Professor Chris Moran</b> Professor Moran is a professor of hydrogeology at the University of Queensland and a past president of the International Association of Hydrogeologists.</p>
<p><b>Emeritus Professor Peter C Flood</b> Emeritus Professor Flood is a professor of hydrogeology at the University of Queensland and a past president of the International Association of Hydrogeologists.</p>

Source: (IESC 2012b).

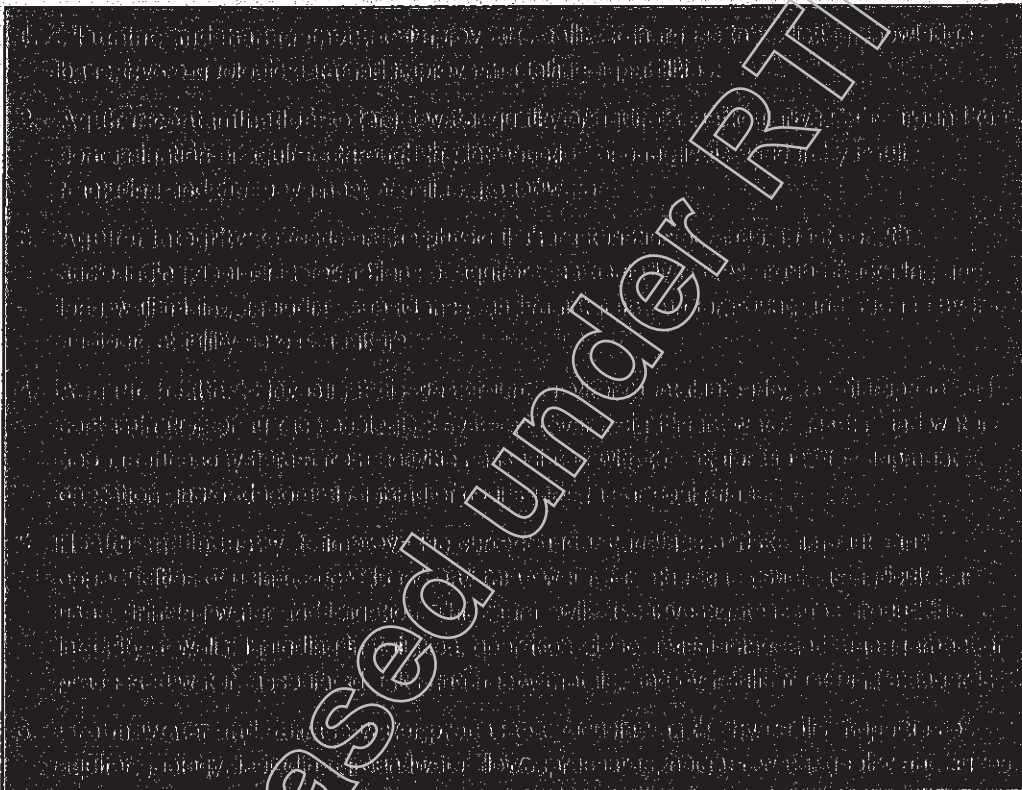


The Office of Water Science, a dedicated unit established in the Department of Sustainability, Environment, Water, Population and Communities supports the Interim Committee with secretariat services. The Interim Committee will work closely with the Office of Water Science until a handover to the new statutory committee is complete.

### Interim Independent Expert Scientific Committee research program

The Interim Committee has determined six priority themes for research designed to tackle critical gaps in scientific understanding about the potential water-related impacts of coal seam gas and/or large coal mining developments to assist in regulatory decisions (Box C.2).

#### Box C.2 Interim Committee priority themes for research



Source: (IIESC 2012g).

### Interim Independent Expert Scientific Committee bioregional assessments

The Interim Committee has a role to advise on bioregional assessments in areas where coal seam gas and/or large coal mining developments are underway or planned. The bioregional assessments will analyse the ecology, hydrology and geology of an area to assess the potential risks to water resources as a result of the impacts of coal seam gas or large coal mining developments. These assessments will provide advice to governments about the water related resources and risks on a region-wide, rather than project specific basis.

Box C.3 outlines the initial areas for bioregional assessments.

**Box C.3 Interim Committee priority regions for bioregional assessments**

1. Queensland and the Eyre Basin, which is defined by the Gulf of Carpentaria, Cooper Creek and the Darling River.
2. NSW and Queensland: Northern Inland Catchments, incorporating the Namoi, Border Rivers, Swain, Macintyre, Dumaresq and Macintyre-Cathlamet catchment basins. This group underlain by the Connamergen and Surat basins.
3. NSW: Northern Sydney Basin and the Gloucester Basin, comprising the Hunter, Central Rivers and Hawkesbury-Nepean natural resource management regions.
4. NSW: Southern Sydney Basin, encompassing the Southern Rivers, Sydney Water and Hawkesbury-Nepean natural resource management regions.
5. Queensland: Clarence-Moreton Basin, encompassing the South East Queensland and Northern Rivers natural resource management regions.

Source: (IIESC 2012a).

**Interim Independent Expert Scientific Committee project advice**

The Commonwealth Government has requested advice from the Interim Committee on a range of projects that are currently being considered under chapter four of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC). The National Partnership requires participating State and Territory governments to seek advice from the Interim Committee on projects that are likely to have a significant impact on water resources.

As at 30 October 2012, the Commonwealth has provided the following projects to the Interim Committee for advice.

**Table C.1 Project advice as at 30 October 2012**

Project	Advice status
<b>NSW projects</b>	
Gloucester Gas Project	being considered
Boggabri Coal Mine Extension	being considered
Centennial Coal Clarence Expansion	advice provided
Warkworth Mine Extension	advice provided
Dart Energy Coal Seam Gas Exploration	advice provided
Apex Illawarra Coal Seam Gas Exploration Drilling and Gas Monitoring Program	advice provided
Mount Pleasant Project—Muswellbrook	advice provided
Centennial Coal Mine Expansion—Springvale and Angus Place	advice provided

Project	Advice status
<b>Queensland projects</b>	
Stanmore 'The Range' Open Cut Coal Mine	being considered
Newland Coal Extension Project	being considered
Arrow Bowen Gas Project	advice provided
Santos Future Gas Supply Area Project	advice provided
Middlemount Coal Mine	advice provided
Anglo Coal (Foxleigh) Pty Ltd—Foxleigh Coal Mine Extension	being considered
Hancock Prospecting Pty Ltd—Alpha Coal Project—Mine and Rail Development	advice provided
Aquila Resources Ltd—Blackwater Washpool Coal	being considered
Adani Resources Ltd—Carmichael Coal Mine and Rail Project	being considered
AMCI (Alpha) Pty Ltd—South Galilee Coal Project	being considered
Taroom Coal Project, Surat Basin	advice provided
Collingwood Coal Project, Surat Basin	advice provided
Codrilla Coal Mine, south east of Moranbah	advice provided
Sonoma Coal Mine Expansion, Collinsville	being considered

**Notes:**

1. All requests for project advice to 30 October 2012 were from the Commonwealth.

Source: (IESC 2012).

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## Appendix E. List of tables, figures and boxes

### List of tables

Table 1.1	Funding under the National Partnership	4
Table C.1	Project advice as at 30 October 2012	27

### List of figures

Figure 1.1	Australia's economically viable gas resources (petajoules)	1
Figure 1.2	Australian basins with coal seam gas potential	2

### List of boxes

Box 1.1	Outcomes of the National Partnership	4
Box 1.2	National Partnership on Coal Seam Gas and Large Coal Mining Development: performance milestones and benchmark	5
Box 1.3	Explanation of milestone progress status and risk status ratings	6
Box 2.1	Commonwealth milestone	8
Box 3.1	State milestones and benchmark	12
Box 4.1	Recommendation	18
Box B.1	Victoria's protocol for project referral to the IESC	21
Box B.2	Queensland's protocol for project referral to the IESC	22
Box B.3	South Australia's protocol for project referral to the IESC	23
Box C.1	Interim IESC members	25
Box C.2	Interim committee priority themes for research	26
Box C.3	Interim committee priority regions for bioregional assessments	27



## Sarah Partosh

---

**From:** Glenys Jenkin  
**Sent:** Thursday, 28 February 2013 2:02 PM  
**To:** Michele Rice  
**Subject:** FW: Meeting request - Peter Coates AO, Chairman, Santos Ltd

Hi Michele  
Back to you to register please and return with a blue sheet.  
Kind regards,  
G

Glenys Jenkin  
Senior Departmental Liaison Officer  
Department of the Premier and Cabinet

Phone: 07 322 45692  
Fax: 07 322 11809

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**From:** Carly Blaik [mailto:Carly.Blaik@ministerial.qld.gov.au]  
**Sent:** Thursday, 28 February 2013 1:58 PM  
**To:** Glenys Jenkin  
**Subject:** RE: Meeting request - Peter Coates AO, Chairman, Santos Ltd

Hi Glenys,

This is a meeting request. Would you kindly register and forward to relevant Policy Adviser?

Many thanks,



**Carly Blaik**  
Executive Assistant to the Premier  
Office of the Hon. Campbell Newman MP | Premier of Queensland  
Phone: 07 3224 4500 | Fax: 07 3221 1809 |  
Executive Building | 100 George Street | Brisbane | QLD 4000  
PO Box 15185 | City East | Brisbane | QLD 4002  
**Great State. Great Opportunity.**

---

**From:** Glenys Jenkin [mailto:Glenys.Jenkin@premiers.qld.gov.au]  
**Sent:** Thursday, 28 February 2013 1:55 PM  
**To:** Carly Blaik  
**Subject:** FW: Meeting request - Peter Coates AO, Chairman, Santos Ltd

Hi Carly  
The below email addressed to you was sent to the departmental inbox.  
Kind regards,  
G

Glenys Jenkin  
Senior Departmental Liaison Officer  
Department of the Premier and Cabinet

Phone: 07 322 45692

Fax: 07 322 11809

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---

**From:** The Premier  
**Sent:** Thursday, 28 February 2013 1:43 PM  
**To:** Glenys Jenkin  
**Subject:** FW: Meeting request - Peter Coates AO, Chairman, Santos Ltd

Hello Glenys

Email for Carly.

---

**From:** Sinton, Natalie [<mailto:Natalie.Sinton@santos.com>]  
**Sent:** Thursday, 28 February 2013 12:29 PM  
**To:** The Premier  
**Subject:** Meeting request - Peter Coates AO, Chairman, Santos Ltd

Dear Carly

Thank you for your time on the phone this morning.

As discussed, I write to request a meeting for our Chairman, Peter Coates with Premier Campbell Newman. The purpose of this meeting is for our Chairman to introduce himself and discuss the Gladstone LNG project and coal seam gas issues.

Peter could be available in Brisbane to meet on the following dates:

- Monday 11 March
- Friday 15 March
- Monday 18 March
- Friday 22 March
- Anytime during w/c 25 March

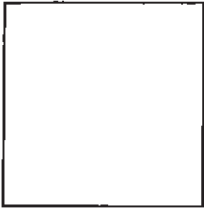
Would you please advise a convenient time for this meeting to take place? Alternatively, I would be happy to propose other dates if necessary.

Kind regards

Natalie

**Natalie Sinton**

Executive Assistant to Peter Coates AO, Chairman  
Santos Ltd  
Tel: + 61 8 8116 5888  
Fax: + 61 2 9293 2111  
Level 23, The Chifley Tower  
2 Chifley Square, Sydney NSW 2000



Santos Ltd A.B.N. 80 007 550 923

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## Sarah Partosh

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**From:** s.73 Personal Information [REDACTED]@hotmail.com>  
**Sent:** Tuesday, 5 March 2013 11:36 AM  
**To:** virgil\_kelk@health.qld.gov.au; penny\_hutchinson@health.qld.gov.au; Lawrence Springborg  
**Cc:** dg\_correspondence@health.qld.gov.au; The Premier (Ministerial); Premiers Master; The Premier; Bill Date; deputypremier@ministerial.qld.gov.au; pumicestone@parliament.qld.gov.au  
**Subject:** Services no longer required  
**Importance:** High

ATTENTION: Virgil Kelk, Dr Penny Hutchinson, Lawrence Springborg.

Virgil Kelk was first contacted early in 2010, but it was not until late 2012 that he and Dr Hutchinson attended their first meeting with us. In all, two meetings were attended (albeit an hour late each time.)

At no time have any officials of Queensland Health been to visit the Tara estates to speak with impacted residents.

Although it has been acknowledged that there are considerable mental health issues with some of our residents, we have not been contacted by the mental health team. (Virgil informed us that he was not empowered to notify the Mental Health team and that this would have to be done by ourselves.)

Lawrence Springborg as our Health Minister has done little more than play politics with the health of a vulnerable community.

It appears that Queensland Health is either incapable, unable or unwilling to address the health issues associated with the development of a gasfield within close proximity to residential areas.

Our Government and its departments have been put in place by the people to serve the people.

When this no longer occurs we have no choice other than find a replacement that will better serve us.

We now have no other choice other than to inform you that in this matter, the services of both Queensland Health and those of the current Health Minister are no longer required, and that we shall request the Commonwealth Government to provide assistance to identify and remedy both the physical and mental health impacts within our community.

We withdraw any previous consent given to Queensland Health to access the medical records and data of residents.

Regards





Released under RTI - DPC

# Central Downs Irrigators Limited

6<sup>th</sup> March 2013

Hon Campbell Newman  
Premier of QLD  
PO Box 15185  
CITY EAST QLD 4002

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Dear Minister,

As chair of Central Downs Irrigators Limited (CDIL) I wish to draw your attention to the attached report which assesses the feasibility of Coal Seam Gas (CSG) water use in the Central Condamine Alluvium (CCA). CDIL believes the report identifies some significant opportunities which should be further investigated.

The CCA is the largest allocated freshwater aquifer in Queensland and is in a stressed condition due to over allocation during its development for irrigation during the 1960's. Since the early 1970's irrigators have been proactive in joining with successive State regulatory agencies to correct the overuse situation and bring usage to a sustainable level. The CCA not only supports an important agricultural irrigation region but also the urban water supply to 5 towns in the region as well as supplying thousands of stock and domestic users with their daily water. All irrigators currently operate on reduced access through an announced allocation process with many irrigators only accessing 50% of their current entitlements. This continues to have a huge economic impact on individual irrigators; nevertheless irrigators remain committed to the process in order to achieve sustainability. Considering the economic cost of this process which has been solely borne by irrigators, I believe the successive State Governments have enjoyed an amazing amount of goodwill from the affected community as they administer these reduction measures without offering compensation.

This "Goodwill" is however, severely threatened by Government approvals for CSG extraction where the CCA will be affected. It is accepted that CSG extraction will impact negatively on the CCA and research is being undertaken to establish more accurately the degree and timing of that impact. Under current legislation the results of this research process will not lead to any approval conditions which would limit quantity impacts on the CCA. Arrow Energy who hold tenements over some of the most productive areas of the CCA are currently awaiting your Governments approval for their Surat Gas Project EIS. They have admitted that there will be a negative impact on the CCA and wish to mitigate that impact even though they are "Not legally required to do so". Irrigators can never accept the current hypocritical situation where government enforces access rules at the irrigators cost, while allowing the CSG industry to impact the CCA with no legally enforceable conditions that limit the impact.

CDIL C/- F. Clapham 541 Clapham Rd, Cecil Plains QLD 4407  
Ph. (07) 46680066 Email: [admin@cdil.com.au](mailto:admin@cdil.com.au) Web: [www.cdil.com.au](http://www.cdil.com.au)  
ABN: 84 010 210 063



# Central Downs Irrigators Limited

Irrigators see the "make good" legislation as having very limited protection for their water access from the CCA. This is due largely to the difficulties which would arise in proving responsibility for impacts, given the already stressed nature of the aquifer and the absence of replacement water of similar quality and quantity in the long-term. All available sources of fresh surface and groundwater in this region are either fully or over allocated.

The attached report outlines some options which CDIL believes should be further explored to test their feasibility before any approvals are granted to extract CSG where the CCA will be impacted. Arrow has expressed a preference for allocation substitution as a solution to mitigate their impacts rather than reinjection. This being because under reinjection the risks would reside with Arrow, unlike their substitution proposal where they plan to pass any risk associated with using the water to the users. While allocation substitution may work in some instances it raises some serious issues for most irrigators which are not easily overcome. However reinjection removes most of those issues and provides the greatest efficiency in terms of benefiting the CCA with the available water. Following the completion of the Healthy Headwaters project, the next step in this process must be a reinjection trial into the CCA in order to establish the practicalities of reinjection as a mitigation measure, before allowing any impact to occur. CDIL urges your government to support this measure.

CDIL's support for reinjection research in the CCA in no way indicates irrigator acceptance of the CSG industries potential surface impacts on irrigation farms. A large part of irrigators past ability to cope with reduced water access has been due to their freedom to alter irrigation methods and farm layouts in order to gain greater water use efficiencies. With the increasing need for greater efficiencies in water use due to further State and Federal Government regulation, the ability of irrigators to pursue these efficiencies could be severely restricted by rigid CSG infrastructure within irrigation farm layouts.

CDIL requests your Governments consideration of these issue, and look forward to your response.



Yours Sincerely,

**Graham Clapham**  
Chairman

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# **Assessment of the feasibility of CSG water use in the Central Condamine Alluvium**

## **Activity 8 of the Healthy HeadWaters Coal Seam Gas Water Feasibility Study**

### **Injection/substitution scheme options under consideration**

15 January 2013

#### **TABLE OF CONTENTS**

1.	INTRODUCTION .....	2
2.	WATER SUPPLY PROFILES.....	3
3.	DESCRIPTION OF THE OPTIONS UNDER CONSIDERATION .....	5



## 1. INTRODUCTION

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Three injection/substitution scheme options using treated CSG water to replenish groundwater in the CCA are being considered. Proposed infrastructure for these schemes has been based on the treated CSG water supply profile anticipated from Arrow Energy's water treatment facility 9 (WTF9) planned for south-west of Cecil Plains, and has been sized to deliver the peak production volumes in the period 2021-26. An additional two CSG treated water supply profiles have been developed using potentially available CSG water from more western areas (concentrated around Miles and Tara). Access to western water could extend the period of peak supply and thus made more efficient use of the infrastructure, as well as delivering more water to the CCA.

### ***Assumptions applying to all injection/substitution scheme options (excludes Option 1)***

General assumptions applying to all injection/substitution scheme options are listed below.

- Treated CSG water supplied by Arrow Energy is sourced downstream of Arrow Energy's Water Treatment Facility 9 (WTF9), planned for south west of Cecil Plains.
- Delivery infrastructure is sized to meet Arrow Energy's peak water production from WTF9.
- Treated CSG water supplied from western areas (other CSG companies) will be transported by pipeline to link up with the pipeline sourcing CSG water from WTF9.
- All treated CSG water supplied will be fit-for-purpose.
- The main pipeline infrastructure is capable of transferring the entire CSG water supply to the injection facilities.
- The injection facilities are capable of operating under variable water supply.
- The pipeline network has no transmission losses (to be further investigated).
- Substitution components of scheme options only consider substitution of the sustainable diversion limit (SDL) for the CCA identified in the Murray Darling Basin Plan supporting documents. Groundwater entitlements for relevant properties have been proportionally reduced to reflect the SDL.
- Appropriate delivery arrangements have been agreed such that it is assumed 1 ML of water substituted is equivalent to 1 ML of groundwater remaining in the CCA. In other words, treated CSG water provided for substitution will be provided in a way that requires no changes to current groundwater use practices.
- Substitution options only consider the infrastructure required to deliver treated CSG water to the farm gate. Infrastructure beyond the farm gate is not considered.
- Substitution infrastructure delivers water to each identified lot regardless of whether or not groups of lots are owned by the same person.
- A high-level, simplified water demand profile has been adopted for substitution components of scheme options (Figure 1). For the purposes of this study, this demand profile is assumed to adequately reflect current groundwater extraction practices regardless of crop type or location.

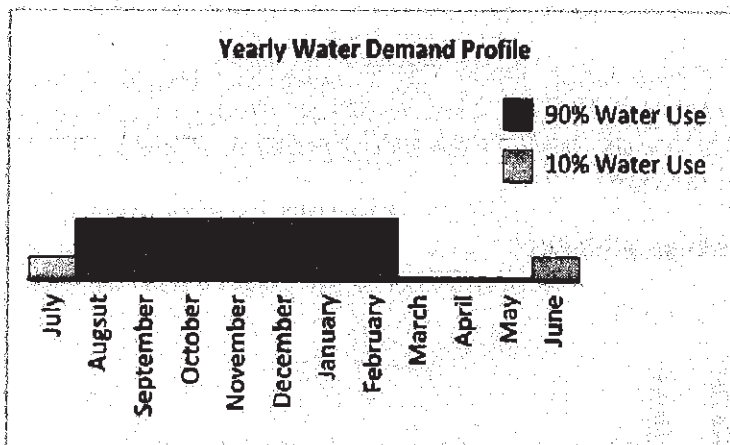


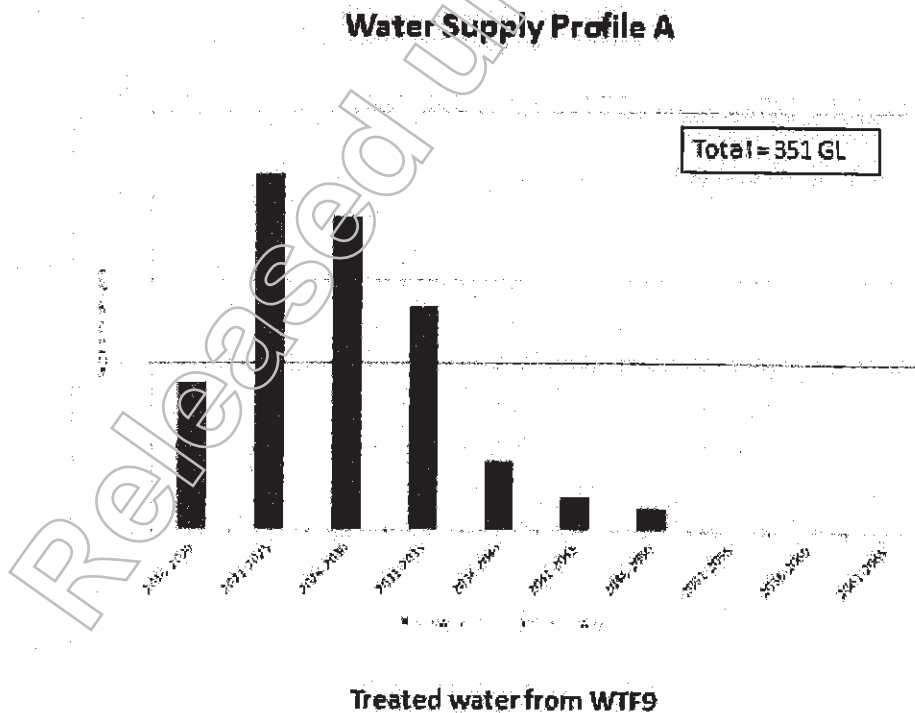
Figure 1: Adopted groundwater extraction profile for CCA irrigators.

## 2. WATER SUPPLY PROFILES

The three water supply profiles are as follows.

### Water Supply Profile A

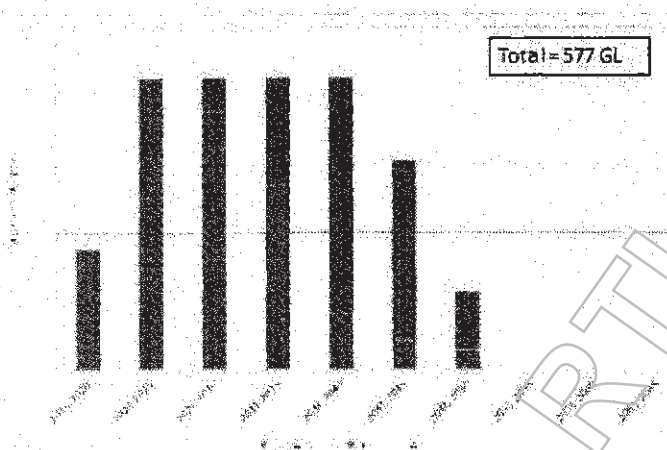
This profile reflects the CSG water produced by Arrow Energy's water treatment facility 9 (WTF9) planned for south-west of Cecil Plains.



**Water Supply Profile B**

This profile extends the peak of water supply profile A by bringing in additional treated CSG water from CSG production areas further to the west of Arrow Energy's tenements. While maintaining the maximum supply peak of water supply profile A, it mimics the supply availability of the western water.

**Water Supply Profile B**

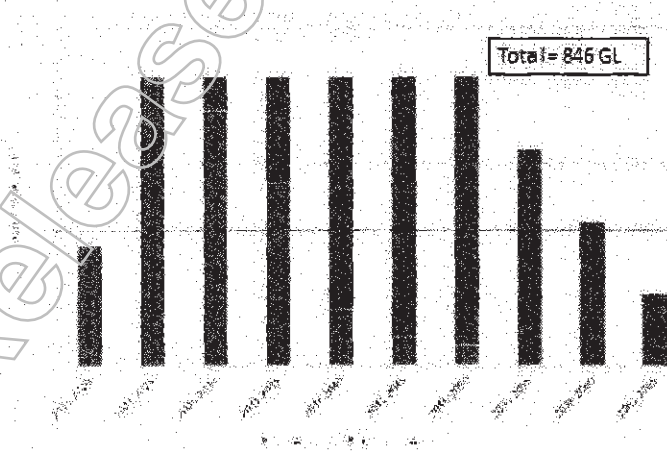


Treated water from WTF9 + water from Chinchilla South to extend peak supply period

**Water Supply Profile C**

This profile also extends the peak of water supply profile A by bringing in additional treated CSG water from CSG production areas further to the west of Arrow Energy's tenements. However, it considers a delay in the production of these waters by ten years such that the peak supply levels can be extended by an additional 15 years. This volume of water is anticipated to fully recharge the Cecil Plains area of the CCA.

**Water Supply Profile C**



Treated water from WTF9 + delayed western water sufficient to fully recharge Cecil Plains area

Table 1 summarises the features of the three water supply profiles.

	Peak supply rate	Peak supply period	Total supply volume	Total supply period
WSP1	21.4 GL/a	2021 – 2030 (10 years) (18.8 GL/a in 2026-2030)	351 GL	2016 – 2050 (35 years)
WSP2	21.4 GL/a	2021 – 2040 (20 years)	577 GL	2016 – 2050 (35 years)
WSP3	21.4 GL/a	2021 – 2050 (30 years)	846 GL	2016 – 2065 (50 years)

Table 1: Features of the three water supply profiles.

### 3. DESCRIPTION OF THE OPTIONS UNDER CONSIDERATION

#### **OPTION 1: DO NOTHING OPTION.**

This option has been developed for the purpose of determining an indicative cost of a ‘do nothing’ option. This reflects what might happen on the CCA if there were no intervention or investment by stakeholders apart from CSG companies whose activities may cause an impact on the CCA.

As the major CSG company with tenements adjacent to and on the CCA, Arrow Energy has indicated they are considering a substitution network to deliver a volume of treated CSG water to balance the potential maximum volume of water which may flow from the CCA into the Walloon Coal Measures as a result of CSG extraction. Arrow Energy has estimated their worst case impact on the CCA as 220 GL over a one hundred year period.

This option has developed a substitution network targeting the high irrigation demand area near Cecil Plains and adjacent to Arrow Energy’s WTF9 (south-west of Cecil Plains) capable of delivering to entitlement holders the worst case scenario volume of 220 GL over a 25 year period. An incentive/compensation factor of 1.5 has been assumed: thus a total volume of 330 GL is delivered at a maximum daily rate of 60ML/day. Water is delivered across 12 months of the year (i.e. Figure 1 does NOT apply).

The cost of disposing of water not used by irrigators (for example, during wet periods) is not included in the assessment of the ‘do nothing’ option.

#### **OPTION 2: BASE CASE: INJECTION TO FIVE SITES.**

This option considers injecting all available treated CSG water into the CCA at five injection sites. The number of injection sites is based on the peak CSG water production from Arrow Energy’s WTF9 which occurs in the period 2021-25.

Five sites of 12 identified in a previous Healthy HeadWaters study (KCB 2012) were selected because they were closest to Arrow Energy’s WTF9. There are two deep injection sites and three shallow injection sites.



**Option 2A** will be assessed using Water Supply Profile A (Treated CSG water from Arrow Energy's WTF9)

**Option 2B** will be assessed using Water Supply Profile B (Treated CSG water from Arrow Energy's WTF9 supplemented with CSG water from Chinchilla South to extend the peak supply period.

**Option 2C** will be assessed using Water Supply Profile C (Treated CSG water from Arrow Energy's WTF9 supplemented for an extended period with western water sufficient to fully recharge the Cecil Plains area.

**OPTION 3: INJECTION PLUS SUBSTITUTION ABUTTING INJECTION PIPELINES.**

This option builds on Option 1. In addition to injection, it considers substitution of all existing groundwater allocations on properties immediately adjacent to the pipelines delivering treated CSG water to the five injection sites.

No incentive/compensation factor is applied to the CSG water used for substitution in this option: it is assumed that the delivery profile is such that a direct equivalence exists between the CSG water supplied and the groundwater that has been substituted.

**Option 3A** will be assessed using Water Supply Profile A (Treated CSG water from Arrow Energy's WTF9)

**Option 3B** will be assessed using Water Supply Profile B (Treated CSG water from Arrow Energy's WTF9 supplemented with CSG water from Chinchilla South to extend the peak supply period.

**Option 3C** will be assessed using Water Supply Profile C (Treated CSG water from Arrow Energy's WTF9 supplemented for an extended period with western water sufficient to fully recharge the Cecil Plains area.

**OPTION 4: INJECTION PLUS A SUBSTITUTION NETWORK TO MEET A MINIMUM DELIVERY PERIOD OF 20 YEARS.**

This option builds on Option 1. In addition to injection to the five sites, it develops a substitution network such that treated CSG water can be supplied for a minimum period of 20 years (this is considered the minimum period that would be worthwhile for irrigators). The highest groundwater use areas were targeted preferentially.

No incentive/compensation factor is applied to the CSG water used for substitution in this option: it is assumed that the delivery profile is such that a direct equivalence exists between the CSG water supplied and the groundwater that has been substituted.

NOTE: the accompanying figure for Option 4 below represents Option 4A. The substitution networks for Options 4B and 4C will be larger.

**Option 4A** will be assessed using Water Supply Profile A (Treated CSG water from Arrow Energy's WTF9)

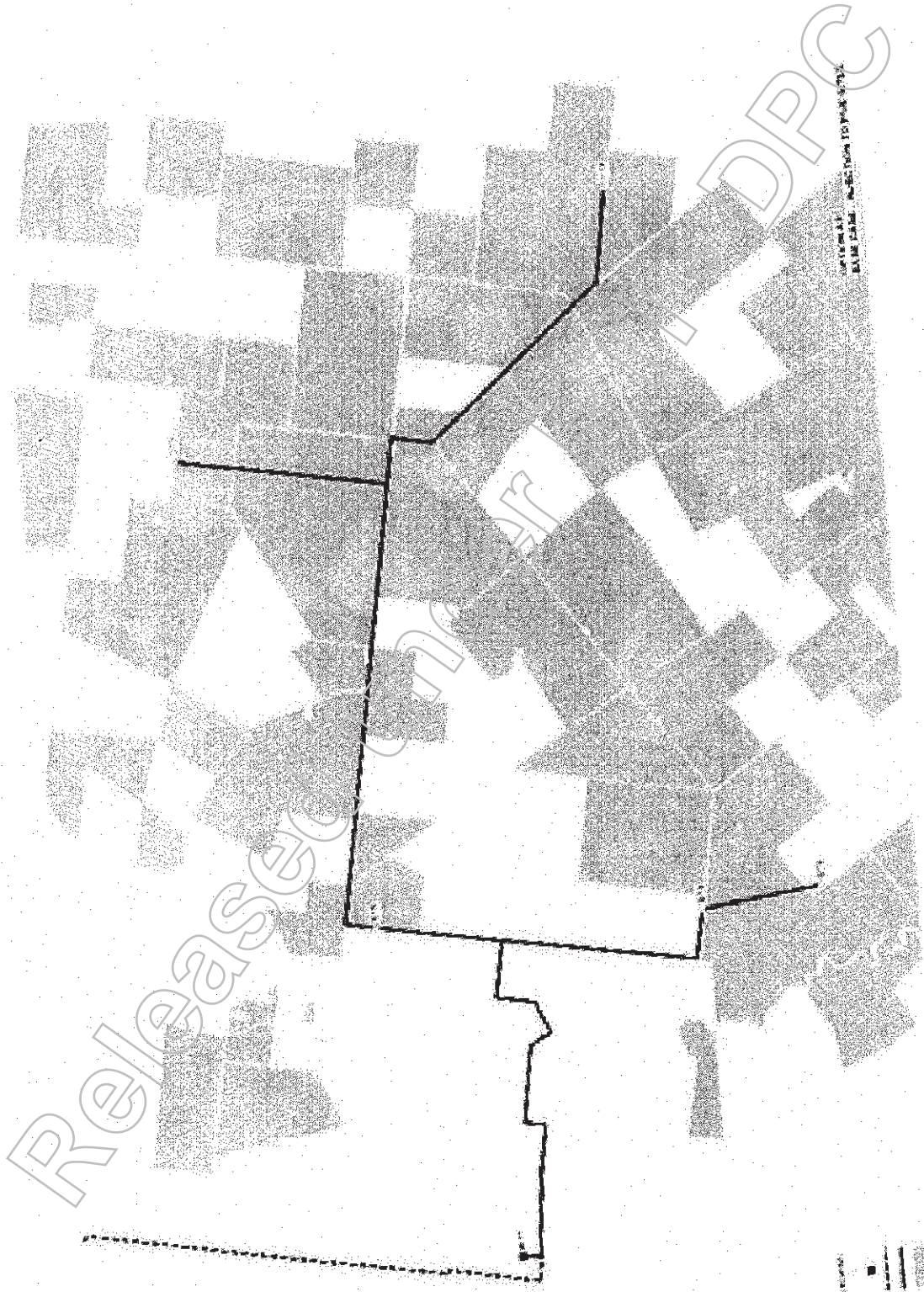
**Option 4B** will be assessed using Water Supply Profile B (Treated CSG water from Arrow Energy's WTF9 supplemented with CSG water from Chinchilla South to extend the peak supply period.

**Option 4C** will be assessed using Water Supply Profile C (Treated CSG water from Arrow Energy's WTF9 supplemented for an extended period with western water sufficient to fully recharge the Cecil Plains area.



**Option 1 – Do nothing. Indicative Arrow substition network.**



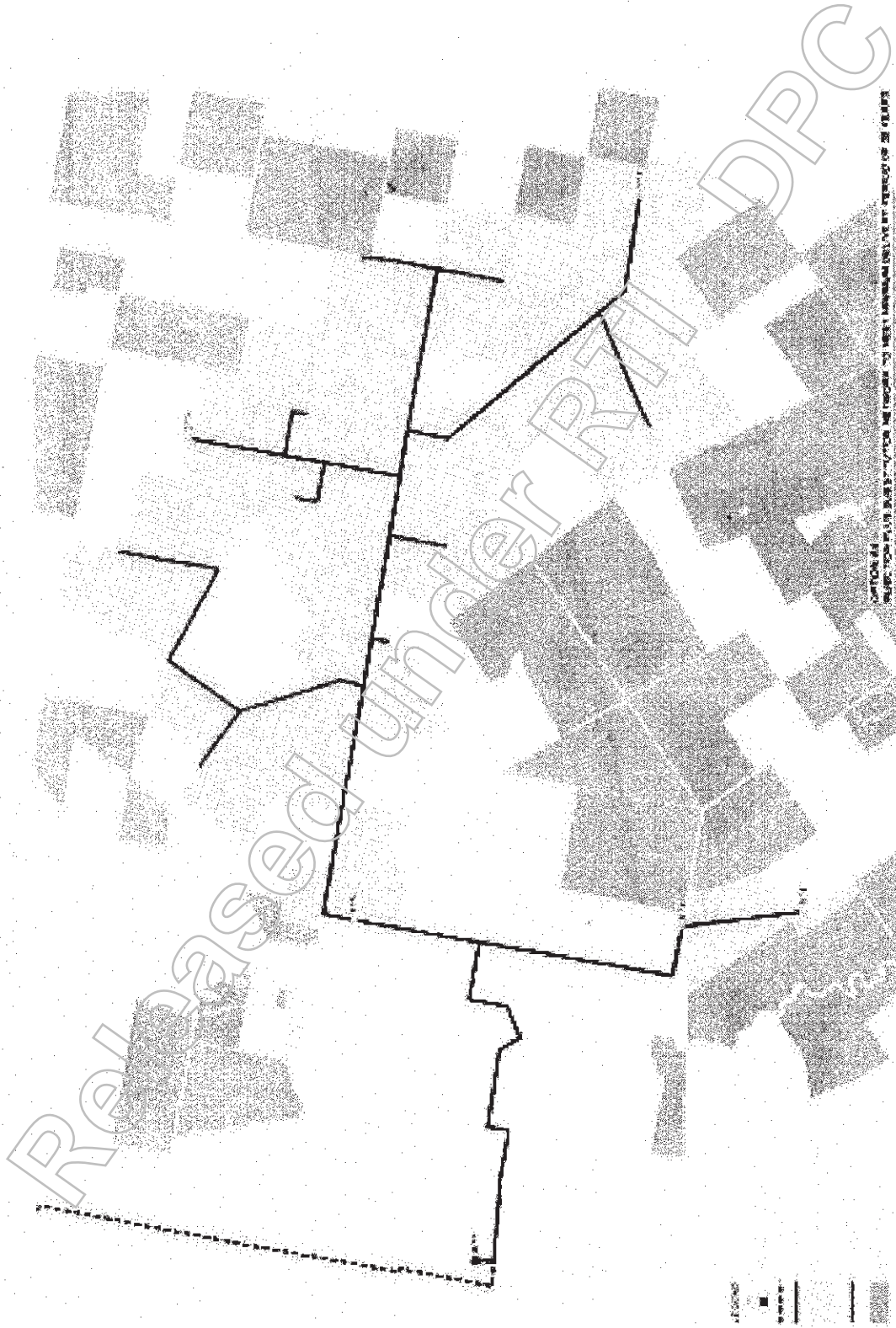


Option 2 – Injection to five sites.



**Option 3 – Injection plus substitution abutting injection pipelines.**





**Option 4 – Injection plus substitution to meet minimum delivery period of 20 years.**

PO Box 102, Toowoomba, Qld, 4350

Phone +61 7 4688 1327

Email enquiries@gfcq.org.au

Web www.gfcq.org.au

12 March 2013

The Honourable Campbell Newman MP  
Premier for Queensland  
PO Box 15185  
CITY EAST QLD 4002

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Dear Mr Newman



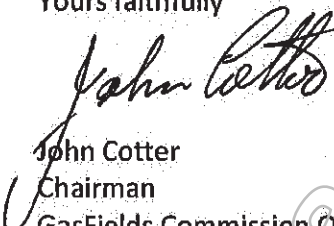
Thank you for your letter dated 22 February 2013, regarding issues raised by [REDACTED] of Kumbarilla, about coal seam gas activity in his area.

The Commission will contact the relevant government agencies to ensure they have dealt with the issues raised by [REDACTED] and hold further discussions with [REDACTED] with regards to any ongoing concerns that he may have.

I will keep you informed of the progressing of [REDACTED] concerns. Please do not hesitate to contact me on [REDACTED] for any clarification.

Thank you for bringing this matter to the attention of the Commission.

Yours faithfully



John Cotter  
Chairman  
GasFields Commission Queensland

Released under RTI

**Sarah Partosh**

---

**From:** The Premier (Ministerial)  
**Sent:** Wednesday, 13 March 2013 12:17 PM  
**To:** The Premier  
**Subject:** FW: NSW Farmers call for farm land to be included in CSG policy

**Importance:** High

---

**From:** [REDACTED] [REDACTED]@bigpond.com]  
**Sent:** Wednesday, 13 March 2013 11:42 AM  
**To:** Toowoomba North; Natural Resources; DAFF; Energy and Water; Toowoomba South; Premier; Deputy Premier  
**Cc:** Animals Australia Animals Australia Enq.; RSPCA; KAP {HQ} Ausparty; KAP Aiden McLindon Party; KAP {Media} Scott Barrett; Bob.Katter.MP@aph.gov.au; KAP Dalrymple Shane Knuth; KAP mount isa; KAP Raymond (Ray) Hopper; KAP Rob Katter MP (Member for Mount Isa); KAP Shane Knuth MP (Member for Dalrymple); Labour: Ann Miller MP; Labour: Annastacia Palaszczuk MP; Labour: Bill Byrne MP; Labour: Curtis Pitt MP; Labour: Desley Scott MP ; Labour: Jackie Trad MP; Labour: Tim Mulherin MP ; Tony.Windsor.MP@aph.gov.au; The Greens; robert.oakeshott.mp@aph.gov.au; Meat & Livestock Australia; Ian.Macfarlane.MP@aph.gov.au; GetUp!  
**Subject:** NSW Farmers call for farm land to be included in CSG policy  
**Importance:** High

## **NSW Farmers call for farm land to be included in CSG policy**

20 Feb 2013 {Australian Farmers and dealers journal}

NSW Farmers welcomed the announcement overnight of a tougher approach to coal seam gas regulation by Premier Barry O'Farrell.

The announcement coincides with a meeting in Sydney of the association's policy setting council comprised of 70 farmer representatives from around the state.

Representatives at the meeting welcomed the announcement but also pointed out that more needs to be done to protect food and fibre producers, not just urban residents.

NSW Farmers' President Fiona Simson said the challenge for today's Coalition party room meeting was simple – to seek a consistent approach for the entire agriculture sector as well as urban areas, vineyards and horse studs.

"NSW Farmers has consistently advocated for a measured approach to mining and CSG policy. We believe there are places in this state that are too priceless to put at risk through mining and gas activities.

"Today, the O'Farrell Government has reached the same conclusion but hasn't extended that to our food and fibre producing lands. We think nothing should be more important.

"We're calling on today's party room meeting to take four simple steps to make this announcement mean something for the bush. They are ruling our most productive farm land off limits and broadening this policy to coal and other minerals – not just coal seam gas," Ms Simson concluded.

Farmers from around the state said during debate today that it would be extremely disheartening to see the state government's coal seam gas policy fail to value significant stretches of farm land the same way that residential and other industries are being valued.

**There are some things more important than jobs and the economy and that is the environment {fauna & flora, air, soil and water} Human and Animal Health. The CGS industry needs to be closed down till it is 100% safe to the environment and human health. So far the CSG industry is NOT fully complying with regulation and that is your fault because gross underfunding of compliance bodies such as the Dept of Environment and Heritage protection who are responsible for managing the health of the environment to protect Queensland's unique ecosystems, including its landscapes and waterways, as well as its native plants and animals and biodiversity. Breaches need to be increased at least 1000% and the CSG CEO and directors held directly responsible for breaches whereby the individuals are also heavily fined and or jailed.**

**Your Government and Labour are very narrowly focused on alternative energy sources, and generation other more environmental friendly sources of income for the State. Start looking around the world at those countries that have little mineral and energy resources and how they generate income. Come ladies and gentlemen, grab a hold of your brains and open your eyes, there is money to be made for the state other than compromising the safety of Human, animal health and the environment by allowing this damaging industry to exist.**

s.73 Personal Information

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## Sarah Partosh

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**From:** The Premier  
**Sent:** Wednesday, 13 March 2013 12:33 PM  
**To:** The Premier  
**Subject:** Underground Coal Gasification

**Importance:** High

Subject: Underground Coal Gasification

Title: MR

First Name: [REDACTED] s.73

Family Name: [REDACTED] Personal

Email: [REDACTED]@com.au

Phone: [REDACTED]

-----  
Address: [REDACTED]

Town: [REDACTED]

State: [REDACTED]

Postcode: [REDACTED]

Email: [REDACTED]@com.au  
-----

Comment:

[REDACTED]

Phone: [REDACTED]

Email: [REDACTED]@com.au

Dear Mr Newman,

I'm writing you for some clarification on the Government's stance on Underground Coal Gasification (UCG), I did and continue to do as much of my own research into UCG and this technology on doing so I came to the conclusion UCG has much going for it and I was convinced to invest in 2 of Queensland's UCG pilot projects, with the hope and strong belief that the all round diversity it had to offer was huge that this would be a success.

So as you can imagine after several years now as pilot projects, I'm eagerly awaiting some clarification from your government on whether this technology will be permitted to move forward from a pilot projects to commercial projects in Queensland.

I was informed some years ago that such a decision would be handed down by the government by the end of 2012 but this has come and gone and we are now into the middle of March 2013 and still no news, it's obvious that I'm a fan of this technology and I feel given the time that it should be afforded, I can't understand why your government wouldn't see the diversity and riches UCG could offer the state of Queensland should it be given the go ahead to move to commercialisation.

Thank you for your time and I hope to hear from you on this matter at your earliest convenience.



The Hon Tony Burke MP

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File No.	113/5622	
MP Registration No.		

Minister for Sustainability, Environment, Water, Population and Communities

B13/367

The Hon Campbell Newman MP  
Premier  
PO Box 15185  
CITY EAST QUEENSLAND 4002

14 MAR 2013

Dear Premier

I am writing to inform you that the Australian Government intends to introduce an amendment to Australia's national environmental law, the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), to provide greater environmental protection for water resources impacted by coal seam gas and large coal mining developments.


The proposed amendments will provide that coal seam gas and large coal mining proposals which are likely to significantly impact on a water resource must be assessed and subject to a decision on approval under the EPBC Act. The proposed amendments will also apply to existing proposals being assessed under the EPBC Act, unless there is a final approval decision in place for the project, or where final advice on the project has been provided by the *Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining* to the Commonwealth Environment Minister, or the relevant state or territory minister. Under the transitional arrangements, projects that are currently being assessed by the Australian Government will continue through the existing assessment process.

The Australian Government intends to implement the amendments in a collaborative manner which minimises duplication with State environmental assessment processes and to rely, to the extent possible, on existing State and proponent assessment information. I have asked my officials to provide the appropriate State officials with more details on this initiative and to ensure that duplication is minimised.

The Australian Government remains committed to the National Partnership Agreement and its objectives as a key mechanism for our governments to robustly manage the key environmental risks associated with coal seam gas and large coal mining developments on Australia's water resources and to enhance community confidence.

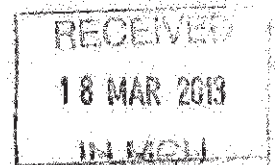
I have copied this letter to the Queensland Minister for Environment and Heritage Protection, the Hon Andrew Powell MP and the Queensland Minister for State Development, Infrastructure and Planning, the Hon Jeff Seeney MP. I look forward to continuing our joint work to improve the efficiency of environmental regulation, for the benefit of business and the broader community.

Yours sincerely



Tony Burke

Released under RTI - DPC





## Sarah Partosh

---

**From:** s.73 Personal Information @optusnet.com.au>  
**Sent:** Monday, 18 March 2013 1:20 PM  
**To:** Peter.Dutton.MP@aph.gov.au  
**Cc:** Tony.Burke.MP@aph.gov.au; The Premier  
**Subject:** Coal and Coal Seam Gas

Dear Mr Dutton,

As a member of your electorate I am concerned about the future of our state and nation. Paramount to our success is the need to develop environmental and economic sustainability in the way we source and consume our energy. In particular I would like to talk about Coal Seam gas and the continued expansion of coal mining.

In environmental terms the impact of both industries is unacceptable. 'Fracking' has been well documented in the USA by those who have been concerned enough to expose the shortcoming of this particular industry. Ground water contamination, the escape of toxic, salt laden fracking water, the unconfined release of some of the coal seam methane into the atmosphere and the use of vast volumes of clean water are all reasons to limit and control this practice, rather than support its continued and rapid expansion. In terms of Coal mining it is a blight on the landscape which completely destroys the land on which its activities are based. As an Airline Pilot I witness the rapidly deteriorating state of the Hunter Valley with its numerous enormous pits, as horrific as they are breathtaking in scale. By night there is a trail of blazing lights linking the Queensland coal fields, stretching from Gladstone to Townsville. Similarly, over my 40 years of being involved in Aviation I have visually witnessed the ever deteriorating state of my daily workplace, the atmosphere. The volume of coal that is under current, proposed or planned extraction within Queensland alone is quoted by some to be expected to add the equivalent of around 10% of the CO2 emissions that are projected to be required take the atmospheric CO2 ratio to its theoretical planetary 'tipping point'. The effect of unconfined coal seam methane being released into the atmosphere is immeasurable and thus should be prevented by banning the practice altogether. As a country that is supposed to be embracing this worldwide 'global warming' problem with policies that reduce carbon emissions, I see nothing but misleading environmental rhetoric and blame game on others. Our Governmental and industrial policies and actions are ironic and humorous, yet shameful and hypocritical, all at the same time.

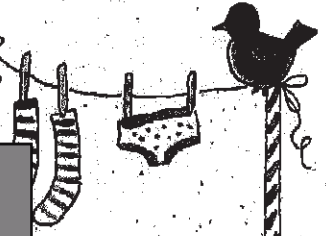
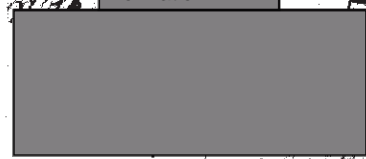
In economic terms Coal has long been the stalwart of generating export income and tax revenue for Australia. Despite the urgent need for Federal and State Governments (like Queensland) to take the shorter view and expand coal extraction to bolster financial shortfalls in revenue, given the continued advances in renewable and sustainable alternative energy sources, its days of profit and of being a reliable stream of tax revenue are numbered. Coal seam gas will also inevitably prove to be unsustainable and uneconomic, thus Australia will be left without its primary sources of national income, with little else to export. It is as predictable as it is inevitable.

The carbon tax in its current form may not be the perfect solution, but it is my belief that it is a start in the right direction. Increasing mining royalties and taxes may not be politically palatable to those facing the ire of the countries economic 'engine room' industries, their professional and highly paid lobbyists, nor the diplomats and foreign investors pushing to develop and exploit our own recourses, but if it inevitably helps force non-renewable and CO2 producing practices out of the market, it is the right approach. Our future decline will be as a direct result of our current national policies and actions in regard to the continued expansion of these two unsustainable industries today. This expansion is not only prolonging switch to the longer term solutions in terms of energy production and a national revenue stream, it is continuing to add to a current and future environmental problem which has yet to be appreciated, let alone tackled.

Regards,

A VERY HOT LINE

s.73 Personal Information



Mr. P. ...  
I am writing to you to ...  
get the D.V.D out and watch it. You  
will see how dangerous it is.  
Here will we get clean water to  
drink, washing clothes, having showers.  
The whole thing is frightening.  
Your sincerely,  
[Redacted]



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JOHN LENNON  
PEACE PRIZE 2010

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SUNDANCE FILM FESTIVAL 2010

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ENVIRONMENTAL  
MEDIA AWARDS 2010

One of the most controversial documentaries in recent years, **GASLAND** is a compelling and emotional first-person story of discovery and, ultimately, empowerment. In 2008, theatre director Josh Fox received a letter from a natural gas company, offering him \$100,000 for permission to explore his upstate New York property. Josh's curiosity led him to ask questions and he discovered that the method for extracting this valuable resource from the "Saudi Arabia" of reserves—hydraulic fracturing or 'fracking'—is exempt from several important federal protections, including the clean water act.

As Josh sets out on a journey across America's heartland, his personal concerns quickly uncover global ones: the multi-million dollar business of fracking has contaminated the water supply, the corporate giants are in cover-up mode, and the PR-spun government has not only turned a blind eye, but has regulated itself out of the picture.

Rough-hewn yet poetic, the film is a desperate plea for scrutiny of a powerful industry that has now turned its eyes on a new, massive and (for now) largely unexplored territory: Australia.



★★★★ "A POWERFUL ALARM" AND AN EMO-TIONAL GEM"  
Sandra Hall, THE SYDNEY MORNING HERALD

★★★★ "COMPELLING STUFF."  
ERIC APPELBAUM, THE NEW YORK TIMES

★★★★ "COMPELLING STUFF."  
Felicite Kerrouche, ABC LIFESTYLE MAGAZINE

AN INTERNATIONAL NOW COOP/PAFF PRODUCTION  
DIRECTOR: JOSH FOX  
EXECUTIVE PRODUCERS: JOSH FOX, MATTHEW SNOLEZ  
PRODUCED BY: JOSH FOX, JONATHAN GARDNER, BENJAMIN ARNOLD  
EDITED BY: JEFFREY WASSER, JONATHAN GARDNER, ALEXANDER  
MCCOY, JOSH FOX  
WWW.GASLAND.COM AND WWW.GASLANDTHEMOVIE.COM

**DVD SPECIAL FEATURES**

- Over 45 minutes of bonus scenes
- David Stratton's extended interview with director Josh Fox from ABC's AT THE MOVIES
- Theatrical trailer

ASPECT RATIO  
WIDESCREEN  
16:9

SOUNDTRACK  
DIGITAL  
DOLBY DIGITAL

SUBTITLES  
None

ORIGIN  
U.S.A.

REGION  
2

DISC FORMAT  
Feature Length:  
104 min  
PAL format, colour  
1 x DVD-9



**PALACE FILMS**  
MADMAN  
DISTRIBUTION

Recommended  
for mature  
audiences



★★★★★ "EXPLOSIVE and UNMISSABLE." Dave Karger

**2011 ACADEMY AWARD® NOMINEE**  
Best Documentary Feature



A film by JOSH FOX

**WINNER**  
SPECIAL JURY PRIZE  
2010  
SUNDANCE  
FILM FESTIVAL

"INCREDIBLY  
INSPIRING." *Rolling Stone*

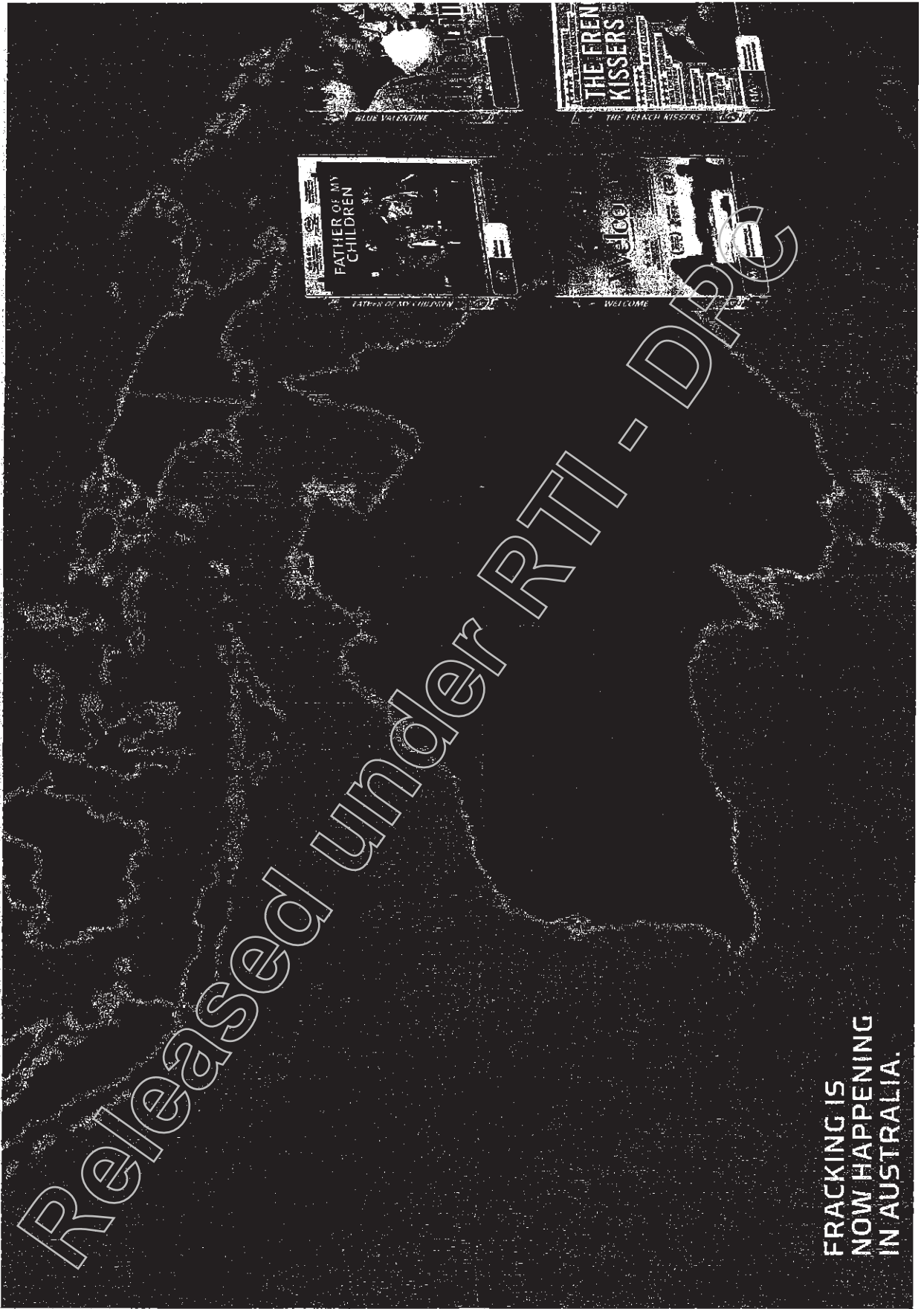
# GASLAND

There's something in the water.

Infrequent coarse  
language



**PALACE FILMS**  
COLLECTION



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FRACKING IS  
NOW HAPPENING  
IN AUSTRALIA.



**Sarah Partosh**

---

**From:** s.73 Personal Information @bigpond.com>  
**Sent:** Friday, 29 March 2013 6:25 PM  
**To:** The Premier  
**Cc:** Kathleen Green; Steven Ciobo; Bob Katter; Andrew Laming; Kirsten Livermore; Ian Macfarlane; Shayne Neumann; Paul Neville; Craig Emerson; Peter Dutton; Stuart Duncan; Yvette D'Ath; Tony Abbott; sheila@hahaha.com.au  
**Subject:** Coal Seam Gas mining

Dear Premier,

Please watch **ABC television "Four Corners" program on Monday 1st April.**

This program will reveal what Queensland Governments have done by allowing Fracking to proceed with blatant disregard to the very harmful effects to human health & the environment.

I wrote a second letter to you dated 1st January, 2013, without receiving a response. This is surely against policy regarding replying to any correspondence.

I am sure you did not like the letter, or were never shown it, but I see no reason for you not to reply.

It is high time your Government put a stop to CSG in Queensland. You will be morally obliged to. Failure to do this will in the long term show it would be the right thing to do.

Mining companies are desperate to show the benefits of CSG, but their business is to make money for their owners and shareholders. They will no doubt double their efforts to counteract the growing numbers of Australians who are protesting about the dangers of CSG mining. Many families are suffering due to illness caused by CSG. Remember this: it will remain on your conscience if you fail to act.

Sincerely,

Please see list below, included in my letter to you dated 1st January, 2013.

### **WHY FRACKING SHOULD BE BANNED**

- 1 Toxic chemicals in water are forced into the rock strata under pressure.
- 2 Fracking creates fissures in the rock strata, thus enabling leakage into surrounding areas, including underground aquifers.
- 3 Each well can be fracked many times, thus compounding the problem listed above.
- 4 **Carcinogens** locked in the strata are released into the ground water and can move into water supplies together with the other toxic chemicals.
- 5 Mining companies are allowed to use huge quantities of water for fracking, which can deplete water supplies to surrounding areas. Farmers and landowners are restricted by licenses in the amount of water they can use.
- 6 The gas produced by fracking (Methane) is exported, and not available to Australian consumers.
- 7 There are **sufficient reserves of undersea gas to keep Australia supplied for its needs indefinitely.**

- 8 Highly saline polluted water from fracking has to be stored in lakes or dams. **There is no safe way of disposing this product.**
- 9 Farmers are losing valuable agricultural land where fracking is in progress, thus leading to loss in food security.
- 10 Land values of properties adjoining properties where fracking occurs are **automatically decreased.** Real Estate Agents will not attempt to sell land with gas wells on it or next door.
- 11 Some landowners are obliged to sell to the mine owners at a devalued price.
- 12 The natural flora and fauna are disturbed and forced away from areas where fracking occurs.
- 13 Experts preparing Environmental Impact Statements for Mining Companies do not reveal the true impacts of Fracking **as the same Companies employ them,** so their statements are skewed in favor of the Companies.
- 14 Scientists have proven fracking causes earthquakes.
- 15 Doctors for the Environment Australia have called for the banning of fracking due to the evidence of the damaging health impacts upon humans. (Refer especially to the Gasfields in the Tara area of Queensland)

**Sarah Partosh**

---

**From:** The Premier  
**Sent:** Monday, 1 April 2013 9:03 PM  
**To:** The Premier  
**Subject:** CSG

**Importance:** High

Subject: CSG  
Title: Mr  
First Name: [Redacted] s.73 Personal Information  
Family Name: [Redacted]  
Email: [Redacted]@hotmail.com  
Phone: [Redacted]

-----  
Address:  
Town:  
State:  
Postcode:  
Email: [Redacted]@hotmail.com  
-----

Comment:

Four corners just showed how blatenly the governments lie.  
I expect CSG to be ceased immediatly. This mining style is environmentally unsound.  
The truth always will come out, do the right thing, stop CSG now!

Released under RTI - DPC

**Sarah Partosh**

---

**From:** The Premier  
**Sent:** Monday, 1 April 2013 9:18 PM  
**To:** The Premier  
**Subject:** Coal Seam Gas

**Importance:** High

Subject: Coal Seam Gas

Title: Mrs

First Name: [Redacted: s.73 Personal Information]

Family Name: [Redacted]

Email: [Redacted].com.au

Phone: [Redacted]

Address: [Redacted]

Town: [Redacted]

State: [Redacted]

Postcode: [Redacted]

Email: [Redacted].com.au

Comment:

I have just watched Four Corners, I am very very angry!  
Thank goodness for the brave Simone Marsh who has stepped forward and shown the people of Australia how much Government's have vested interests and that they are prepared to destroy our wonderful country and destroy the life blood, our water supply, all for money and to feed foreign investment.  
ENOUGH is ENOUGH  
I ask you to now stop SANTOS and stop any further coal seam gas development.  
As it has shown in the Four Corners program all of these projects were given approval on false pretences. A full enquiry must now take place and these projects halted.  
Development must not be given the green light without a full environmental study.  
So I ask you what are you going to do about this industry Coal Seam gas now that you have the facts from Four Corners?

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**Sarah Partosh**

---

**From:** The Premier  
**Sent:** Tuesday, 2 April 2013 8:03 AM  
**To:** The Premier  
**Subject:** coal seam gas

**Importance:** High

Subject: coal seam gas  
Title: mrs  
First Name: [Redacted] s.73 Personal Information  
Family Name: [Redacted]  
Email: [Redacted]@yahoo.com.au  
Phone: [Redacted]

-----  
Address: [Redacted]  
Town: [Redacted]  
State: [Redacted]  
Postcode: [Redacted]  
Email: [Redacted]@yahoo.com.au  
-----

Comment:

Dear Premier, I watched the four corners programme last night regarding coal seam gas and I am truly frightened for the future of our great state. Please, please do something about the coal seam gas drilling before it is too late. I trust that you will take this matter very seriously.  
Regards, [Redacted]

Released under RTI - DPC

## Sarah Partosh

---

**From:** s.73 Organisation <[REDACTED]@hotmail.com>  
**Sent:** Tuesday, 2 April 2013 8:59 AM  
**To:** The Premier (Ministerial); Premiers Master; The Premier  
**Cc:** Alan Jones; Andrew Cripps; Andrew Powell; annette.hutchins999@gmail.com; Bill Date; brendan.barrett@originenergy.com.au; Brett Smith; Brian Monk; callinanr@theaustralian.com.au; Cassandra Hough; catherine.tanna@bg-group.com; charmaine.aldridge@communities.qld.gov.au; Chris Bath; communities@ministerial.qld.gov.au; community@qgc.com.au; Dave and Cathy Monk; David Collins; david.darvall@ehp.qld.gov.au; Dayne Pratzky; deborah.williams@bg-group.com; deputypremier@ministerial.qld.gov.au; Derek Fisher; deweeder75@gmail.com; dg\_correspondence@health.qld.gov.au; Drew Hutton; editorial@chinchillanews.com.au; education@ministerial.qld.gov.au; energyandwater@ministerial.qld.gov.au; enquiries@gfcq.org.au; gasfieldscommission@deedi.qld.gov.au; gasfieldscommission@qld.gov.au; geralyn mccarron; Healy, Samantha; Heidrich, Tony; Heiner Ian; Jack Dempsey; jamie.kemshead@bg-group.com; Jarrod Bleijie; John Cotter; justine@getup.org.au; Lawrence Springborg; pumicestone@parliament.qld.gov.au; Mariann Lloyd Smith; Mark; mccarthyj@couriermail.com.au; Michael Bretherick; michelecullen12@gmail.com; minister.bates@ministerial.qld.gov.au; nikki.voss@originenergy.com.au; Paul Cleary; pauline.jacob@bg-group.com; penny\_hutchinson@health.qld.gov.au; QGC Community; Renee Hoare; Rhianwen Whitney; rob.millhouse@bg-group.com; Sam; Scott Collins; senator.carr@aph.gov.au; Stephanie Smail; stephen.matheson@deedi.qld.gov.au; Tony Nunan; tony.abbott.mp@aph.gov.au; Tracey Winters; troy.rowling@ruralpress.com; Trudy Tronc; virgil\_kelk@health.qld.gov.au; zoe.carroll@bg-group.com; aiwalsh@nine.com.au; box.bg.oman@bg-group.com; bgnorge@bg-group.com; box.info@bg-group.com; condamine@parliament.qld.gov.au; senator.milne@aph.gov.au; senator.siewert@aph.gov.au; senator.ludlam@aph.gov.au; senator.fielding@aph.gov.au; tony.burke.mp@aph.gov.au  
**Subject:** FW: Prove CSG is safe!!!

**Importance:** High

Attention: Campbell Newman- The Premier and Campbell Newman-the person.

You are not responding to my request!  
Perhaps i should take that as a sign that CSG is NOT safe?

Once again i am requesting the QLD Government and the CSG Industry to PROVE CSG IS SAFE!  
I would like it in writing, that CSG is safe and poses no threat to the residents who have been forced to live in a gas field.

I would appreciate prompt action on this matter!

---

From [REDACTED]@hotmail.com

To: premier@ministerial.qld.gov.au; premiers.master@premiers.qld.gov.au;

the.premier@premiers.qld.gov.au

CC: alanjones@2gb.com; nrm@ministerial.qld.gov.au; environment@ministerial.qld.gov.au;  
annette.hutchins999@gmail.com; bill.date@dnrm.qld.gov.au; brendan.barrett@originenergy.com.au;  
brett.smith@bg-group.com; brianmonk54@gmail.com; callinanr@theaustralian.com.au;  
hough.cassandra@abc.net.au; catherine.tanna@bg-group.com;  
charmaine.aldrige@communities.qld.gov.au; cbath@seven.com.au;  
communities@ministerial.qld.gov.au; community@qgc.com.au; monleigh10@gmail.com;  
david@chemicalmedia.tv; david.darvall@ehp.qld.gov.au; daynepratzky@gmail.com;  
deborah.williams@bg-group.com; deputypremier@ministerial.qld.gov.au; derek.fisher@bg-group.com;  
deweeder75@gmail.com; dg\_correspondence@health.qld.gov.au; dhutton97@gmail.com;  
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energyandwater@ministerial.qld.gov.au; enquiries@gfcq.org.au; gasfieldscommission@deedi.qld.gov.au;  
gasfieldscommission@qld.gov.au; geraldymcc@gmail.com; healys@thesundaymail.com.au;  
tony.heidrich@bg-group.com; ian.heiner@dnrm.qld.gov.au; police@ministerial.qld.gov.au;  
jamie.kemshead@bg-group.com; attorney@ministerial.qld.gov.au; john.cotter@deedi.qld.gov.au;  
justine@getup.org.au; health@ministerial.qld.gov.au; pumicestone@parliament.qld.gov.au;  
biomap@oztoxics.org; justice@twb.catholic.org.au; mccarthyj@couriermail.com.au;  
happiness@activ8.net.au; michelecullen12@gmail.com; minister.bates@ministerial.qld.gov.au;  
nikki.voss@originenergy.com.au; clearypau@theaustralian.com.au; pauline.jacob@bg-group.com;  
penny\_hutchinson@health.qld.gov.au; mailbox.community@bg-group.com;  
rhoare@lifelinedarlingdowns.org.au; whitney.rhianwen@abc.net.au; rob.millhouse@bg-group.com;  
williamssam@dailytelegraph.com.au; scott\_jerry@hotmail.com; senator.carr@aph.gov.au;  
smaill.stephanie@abc.net.au; stephen.matheson@deedi.qld.gov.au; tony.nunan@bg-group.com;  
tony.abbott.mp@aph.gov.au; tracey.winters@bg-group.com; troy.rowling@ruralpress.com;  
trudy.tronc@communities.qld.gov.au; virgil\_kelk@health.qld.gov.au; zoe.carroll@bg-group.com;  
aiwalsh@nine.com.au; box.bg.oman@bg-group.com; bgnorge@bg-group.com; box.info@bg-group.com;  
condamine@parliament.qld.gov.au; senator.milne@aph.gov.au; senator.siewert@aph.gov.au;  
senator.ludlam@aph.gov.au; senator.fielding@aph.gov.au; tony.burke.mp@aph.gov.au

Subject: Prove CSG is safe!!!

Date: Tue, 26 Mar 2013 12:56:56 +1100

Attention: Campbell Newman- The Premier and Campbell Newman-the person.

I would like the QLD Government to prove that CSG is safe!!!

Why are you not prepared to put in writing(as i have previously requested) that CSG is safe, and poses no risk to the residents who, through the negligence of the QLD Government in allowing CSG companies to invade their area-without baseline testing and measures put in place to protect residents, are now forced to live in a gasfield.

Your Government has forced us into proving a link between CSG and health impacts, (Which we are attempting to do), so i am now calling on the QLD Government AND the CSG industry to PROVE CSG

is safe!!!

Regards

s.73 Organisation

A large rectangular area of the document is redacted with a solid grey fill, obscuring the content of the letter.

Released under RTI - DPC



**Sarah Partosh**

---

**From:** The Premier  
**Sent:** Tuesday, 2 April 2013 10:20 AM  
**To:** The Premier  
**Subject:** A Fracking Problem

**Importance:** High

Subject: A Fracking Problem  
Title: Mr  
First Name: [Redacted] s.73 Personal Information  
Family Name: [Redacted]  
Email: [Redacted]@msn.com  
Phone:

-----  
Address: [Redacted]  
Town: [Redacted]  
State: [Redacted]  
Postcode: [Redacted]  
Email: [Redacted]@msn.com  
-----

Comment:

It appears that the Queensland Department of State Development, Infrastructure and Planning, particularly Dave Edwards and Barry Broe have allowed the coal seam fracking companies to ruin the area around the Condamine, with their gas leaks, and widespread illegal destruction of native flora.

So what does your government plan to do about it?

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**Sarah Partosh**

---

**From:** The Premier  
**Sent:** Tuesday, 2 April 2013 12:17 PM  
**To:** The Premier  
**Subject:** Coal Seam Gas

**Importance:** High

Subject: Coal Seam Gas

Title: Ms

First Name: [Redacted] s.73 Personal Information

Family Name: [Redacted]

Email: [Redacted]@hotmail.com

Phone:

-----  
Address: [Redacted]

Town: [Redacted]

State: [Redacted]

Postcode: [Redacted]

Email: [Redacted]@hotmail.com  
-----

Comment:

Why does Chambell Newman continue to allow CSG mining in QLD?

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**Sarah Partosh**

---

**From:** s.73 Personal Informati@gmail.com>  
**Sent:** Tuesday, 2 April 2013 3:39 PM  
**To:** The Premier  
**Cc:** WDA  
**Subject:** Fwd: FW: Prove CSG is safe!!!

Mr Newman, Is Coal Seam Gas safe? We need answers!!

----- Forwarded message -----

From: s.73 Organisation @hotmail.com>

Date: Tue, Apr 2, 2013 at 8:58 AM

Subject: FW: Prove CSG is safe!!!

To: Campbell Newman <premier@ministerial.qld.gov.au>, "premiers.master@premiers.qld.gov.au" <premiers.master@premiers.qld.gov.au>, The Premier <the.premier@premiers.qld.gov.au>  
Cc: Alan Jones <alanjones@2gb.com>, Andrew Cripps <nrm@ministerial.qld.gov.au>, Andrew Powell <environment@ministerial.qld.gov.au>, "annette.hutchins999@gmail.com" <annette.hutchins999@gmail.com>, Bill Date <bill.date@dnrm.qld.gov.au>, "brendan.barrett@originenergy.com.au" <brendan.barrett@originenergy.com.au>, Brett Smith <brett.smith@bg-group.com>, Brian Monk <brianmonk54@gmail.com>, "callinanr@theaustralian.com.au" <callinanr@theaustralian.com.au>, Cassandra Hough <hough.cassandra@abc.net.au>, "catherine.tanna@bg-group.com" <catherine.tanna@bg-group.com>, "charmaine.aldridge@communities.qld.gov.au" <charmaine.aldridge@communities.qld.gov.au>, Chris Bath <cbath@seven.com.au>, "communities@ministerial.qld.gov.au" <communities@ministerial.qld.gov.au>, "community@ggc.com.au" <community@ggc.com.au>, Dave and Cathy Monk <monleigh10@gmail.com>, David Collins <david@chemicalmedia.tv>, "david.darvall@ehp.qld.gov.au" <david.darvall@ehp.qld.gov.au>, Dayne Pratzky <daynepratzky@gmail.com>, "deborah.williams@bg-group.com" <deborah.williams@bg-group.com>, "deputypremier@ministerial.qld.gov.au" <deputypremier@ministerial.qld.gov.au>, Derek Fisher <derek.fisher@bg-group.com>, "deweeder75@gmail.com" <deweeder75@gmail.com>, "dg\_correspondence@health.qld.gov.au" <dg\_correspondence@health.qld.gov.au>, Drew Hutton <dhutton97@gmail.com>, "editorial@chinchillanews.com.au" <editorial@chinchillanews.com.au>, "education@ministerial.qld.gov.au" <education@ministerial.qld.gov.au>, "energyandwater@ministerial.qld.gov.au" <energyandwater@ministerial.qld.gov.au>, "enquiries@gfcq.org.au" <enquiries@gfcq.org.au>, "gasfieldscommission@deedi.qld.gov.au" <gasfieldscommission@deedi.qld.gov.au>, "gasfieldscommission@qld.gov.au" <gasfieldscommission@qld.gov.au>, geraldyn mccarron <geraldynmcc@gmail.com>, "Healy, Samantha" <healys@thesundaymail.com.au>, "Heidrich, Tony" <tony.heidrich@bg-group.com>, Heiner Ian <ian.heiner@dnrm.qld.gov.au>, Jack Dempsey <police@ministerial.qld.gov.au>, "jamie.kemshead@bg-group.com" <jamie.kemshead@bg-group.com>, Jarrod Bleijie <attorney@ministerial.qld.gov.au>, John Cotter <john.cotter@deedi.qld.gov.au>, "justine@getup.org.au" <justine@getup.org.au>, Lawrence Springborg <health@ministerial.qld.gov.au>, Lisa France <pumicestone@parliament.qld.gov.au>, Mariann Lloyd Smith <biomap@oztoxics.org>, Mark <justice@twb.catholic.org.au>, "mccarthyj@couriermail.com.au" <mccarthyj@couriermail.com.au>, Michael Bretherick <happiness@activ8.net.au>, "michelecullen12@gmail.com" <michelecullen12@gmail.com>, "minister.bates@ministerial.qld.gov.au" <minister.bates@ministerial.qld.gov.au>, "nikki.voss@originenergy.com.au" <nikki.voss@originenergy.com.au>, Paul Cleary <clearypau@theaustralian.com.au>, "pauline.jacob@bg-group.com" <pauline.jacob@bg-group.com>, "penny\_hutchinson@health.qld.gov.au" <penny\_hutchinson@health.qld.gov.au>, QGC Community <mailbox.community@bg-group.com>, Renee Hoare <rhoare@lifelinedarlingdowns.org.au>, Rhianwen Whitney <whitney.rhianwen@abc.net.au>, "rob.millhouse@bg-group.com" <rob.millhouse@bg-group.com>, Sam <williamssam@dailytelegraph.com.au>, Scott Collins <scott\_jerry@hotmail.com>,

"[senator.carr@aph.gov.au](mailto:senator.carr@aph.gov.au)" <[senator.carr@aph.gov.au](mailto:senator.carr@aph.gov.au)>, Stephanie Smail <[smail.stephanie@abc.net.au](mailto:smail.stephanie@abc.net.au)>, "[stephen.matheson@deedi.qld.gov.au](mailto:stephen.matheson@deedi.qld.gov.au)" <[stephen.matheson@deedi.qld.gov.au](mailto:stephen.matheson@deedi.qld.gov.au)>, Tony Nunan <[tony.nunan@bg-group.com](mailto:tony.nunan@bg-group.com)>, "[tony.abbott.mp@aph.gov.au](mailto:tony.abbott.mp@aph.gov.au)" <[tony.abbott.mp@aph.gov.au](mailto:tony.abbott.mp@aph.gov.au)>, Tracey Winters <[tracey.winters@bg-group.com](mailto:tracey.winters@bg-group.com)>, "[troy.rowling@ruralpress.com](mailto:troy.rowling@ruralpress.com)" <[troy.rowling@ruralpress.com](mailto:troy.rowling@ruralpress.com)>, Trudy Tronc <[trudy.tronc@communities.qld.gov.au](mailto:trudy.tronc@communities.qld.gov.au)>, "[virgil\\_kelk@health.qld.gov.au](mailto:virgil_kelk@health.qld.gov.au)" <[virgil\\_kelk@health.qld.gov.au](mailto:virgil_kelk@health.qld.gov.au)>, "[zoe.carroll@bg-group.com](mailto:zoe.carroll@bg-group.com)" <[zoe.carroll@bg-group.com](mailto:zoe.carroll@bg-group.com)>, "[aiwalsh@nine.com.au](mailto:aiwalsh@nine.com.au)" <[aiwalsh@nine.com.au](mailto:aiwalsh@nine.com.au)>, "[box.bg.oman@bg-group.com](mailto:box.bg.oman@bg-group.com)" <[box.bg.oman@bg-group.com](mailto:box.bg.oman@bg-group.com)>, "[bgnorge@bg-group.com](mailto:bgnorge@bg-group.com)" <[bgnorge@bg-group.com](mailto:bgnorge@bg-group.com)>, "[box.info@bg-group.com](mailto:box.info@bg-group.com)" <[box.info@bg-group.com](mailto:box.info@bg-group.com)>, "[condamine@parliament.qld.gov.au](mailto:condamine@parliament.qld.gov.au)" <[condamine@parliament.qld.gov.au](mailto:condamine@parliament.qld.gov.au)>, "[senator.milne@aph.gov.au](mailto:senator.milne@aph.gov.au)" <[senator.milne@aph.gov.au](mailto:senator.milne@aph.gov.au)>, "[senator.siewert@aph.gov.au](mailto:senator.siewert@aph.gov.au)" <[senator.siewert@aph.gov.au](mailto:senator.siewert@aph.gov.au)>, "[senator.ludlam@aph.gov.au](mailto:senator.ludlam@aph.gov.au)" <[senator.ludlam@aph.gov.au](mailto:senator.ludlam@aph.gov.au)>, "[senator.fielding@aph.gov.au](mailto:senator.fielding@aph.gov.au)" <[senator.fielding@aph.gov.au](mailto:senator.fielding@aph.gov.au)>, "[tony.burke.mp@aph.gov.au](mailto:tony.burke.mp@aph.gov.au)" <[tony.burke.mp@aph.gov.au](mailto:tony.burke.mp@aph.gov.au)>

Attention: Campbell Newman- The Premier and Campbell Newman-the person.

You are not responding to my request!  
Perhaps i should take that as a sign that CSG is NOT safe?

Once again i am requesting the QLD Government and the CSG Industry to PROVE CSG IS SAFE!  
I would like it in writing, that CSG is safe and poses no threat to the residents who have been forced to live in a gas field.

I would appreciate prompt action on this matter!

Regards



---

From [redacted]@hotmail.com  
To: [premier@ministerial.qld.gov.au](mailto:premier@ministerial.qld.gov.au); [premiers.master@premiers.qld.gov.au](mailto:premiers.master@premiers.qld.gov.au);  
[the.premier@premiers.qld.gov.au](mailto:the.premier@premiers.qld.gov.au)  
CC: [alanjones@2gb.com](mailto:alanjones@2gb.com); [nrm@ministerial.qld.gov.au](mailto:nrm@ministerial.qld.gov.au); [environment@ministerial.qld.gov.au](mailto:environment@ministerial.qld.gov.au);  
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[pumicestone@parliament.qld.gov.au](mailto:pumicestone@parliament.qld.gov.au); [biomap@oztoxics.org](mailto:biomap@oztoxics.org); [justice@twb.catholic.org.au](mailto:justice@twb.catholic.org.au);  
[mccarthyj@couriermail.com.au](mailto:mccarthyj@couriermail.com.au); [happiness@activ8.net.au](mailto:happiness@activ8.net.au); [michelecullen12@gmail.com](mailto:michelecullen12@gmail.com);



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senator.ludlam@aph.gov.au; senator.fielding@aph.gov.au; tony.burke.mp@aph.gov.au

Subject: Prove CSG is safe!!!

Date: Tue, 26 Mar 2013 12:56:56 +1100

Attention: Campbell Newman- The Premier and Campbell Newman-the person

I would like the QLD Government to prove that CSG is safe!!!

Why are you not prepared to put in writing(as i have previously requested) that CSG is safe, and poses no risk to the residents who, through the negligence of the QLD Government in allowing CSG companies to invade their area-without baseline testing and measures put in place to protect residents, are now forced to live in a gasfield.

Your Government has forced us into proving a link between CSG and health impacts, (Which we are attempting to do), so i am now calling on the QLD Government AND the CSG industry to PROVE CSG is safe!!!

Regards



**Sarah Partosh**

---

**From:** The Premier  
**Sent:** Tuesday, 2 April 2013 4:43 PM  
**To:** The Premier  
**Subject:** Request for Urgent Investigation CSG approvals  
**Attachments:** Letter to Premier Newman 02042013.pdf

**Importance:** High

Subject: Request for Urgent Investigation CSG approvals

Title: Mrs

First Name: [Redacted] s.73 Personal Information

Family Name: [Redacted]

Email: [Redacted].com

Phone: [Redacted]

-----  
Address: [Redacted]

Town: [Redacted]

State: [Redacted]

Postcode: [Redacted]

Email: [Redacted].com  
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Comment:

Please refer to my attached letter

Released under RTI - DPC

s.73 Personal Information

s.73 Personal Information

2 April 2013

Premier C Newman  
Queensland Government  
PO Box 15185  
City East  
Queensland 4002

s.73 Personal Information

T:  
M:  
F:  
E: .com

Dear Mr Premier

**Request for Official Investigation**  
**CSG approvals process issues raised by ABC-TV 4Corners aired 1 April 2013**

With reference to the Coal Seam Gas ("CSG") approvals process issues raised by the ABC-TV 4Corners report aired 1 April 2013 I request that you commence an immediate official investigation into these allegations. As our elected leader, it is your duty to ensure that processes implemented are properly followed at all times.

I draw your attention to the late-era Bjelke-Petersen period of governance in this State. It is my belief that it is *absolutely imperative* that your leadership must take swift and decisive action in investigating these claims of serious misconduct within the governance of this State. Should misconduct be found to have occurred, those persons should be publically held accountable and prosecuted to send a clear message that proper process must be followed.

If the Coal Seam Gas industry truly believes that their approvals process that was legitimate and that their industry will not harm our environment, they should put their full and immediate support behind such an investigation. If they do not, the question arises as to why not?

I look forward to your response to this request.

[Redacted signature block]

cc: Bruce Scott MP (Federal)

[Redacted footer block]

## Sarah Partosh

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**From:** The Premier (Ministerial)  
**Sent:** Wednesday, 3 April 2013 7:28 AM  
**To:** The Premier  
**Subject:** FW: Carbon Energy Letter to Hon Campbell Newman  
**Attachments:** 20130402 Letter to Hon Campbell Newman.pdf

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**From:** Liv Moores [mailto:lmoores@carbonenergy.com.au]  
**Sent:** Tuesday, 2 April 2013 5:40 PM  
**To:** Premier  
**Subject:** Carbon Energy Letter to Hon Campbell Newman

Good Afternoon,

Please see attached a letter from Dr Chris Rawlings, Chairman of Carbon Energy Limited, discussing Underground Coal Gasification (UCG) in Queensland.

If you have any difficulties opening the attached file please do not hesitate to contact me directly.

Kind Regards

**Liv Moores** | Executive Assistant



**Carbon Energy Limited**

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2 April 2013



**carbonenergy**

Carbon Energy Limited | ABN 56 057 552 137

Hon Campbell Newman  
Premier of Queensland  
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QLD 4002

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Carbon Energy (Operations) Pty Ltd  
ABN 61 105 176 967

Dear Premier,

Thank you for your recent offer for me to keep you informed about progress on the discussions with the DNRM and DEHP, on the future of Underground Coal Gasification and the next steps in considering the ISP Report.

Rather than cover the range of issues in detail I have attached for your information our response to Minister Cripps, including our initial responses to the ISP Report.

Carbon Energy is determined to demonstrate the last remaining concerns from the Departments can be addressed. Queensland can benefit from the considerable advantages and opportunities that a new technology, such as UCG, can unlock. We will work constructively with the Departments so that Queensland can take up the opportunities this technology offers.

Carbon Energy has engaged former Australian Chief Scientist Robin Batterham AO to appraise and advise Carbon Energy on its formal response to the original ISP Report.

Queensland is currently leading the world in revolutionising UCG to unlock vast sums of new energy. Our technology preserves the groundwater by operating below the hydrostatic pressure and not pumping groundwater to the surface. Our process also extracts 20 times more energy from the same resource as when compared with coal seam gas (CSG), hence our environmental footprint and impact is 20 times smaller than CSG.

If there is one particular issue about the review process I would draw your attention to now it is our concern over the lack of consultation allowed for in responding to the Report and by the proposed peer review process of the original ISP Report.

The potential opportunity for jobs, a new source of energy for manufacturing industries and additional domestic gas supply for Brisbane (from Carbon Energy's Bloodwood Creek Reserve), could be lost to Queensland if the proposed review process is prematurely concluded, without full and complete consultation.

The scope of the draft Terms of Reference for the Minister's proposed review do not allow for expert information on the experience of UCG production to be submitted from the very companies who possess the most recent and up to date experience on UCG. Any information provided by the proponents has to pass through the Department. This serves no good policy or scientific purpose. It looks prejudicial to the outcome to deny direct access

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between a proposed scientific review and the technical advisers of the very projects that were the subjects of the original study - particularly noting that the Department, which proposes to act as a filter, has no UCG technical experts.

Because of the range of scientific, policy and commercial implications at stake, I believe it would be valuable to arrange for our Acting CEO Morné Engelbrecht and his team to provide a briefing to your office and to your Director-General at your convenience.

We ask no more than for UCG be assessed on the same regulatory basis as other resource developments and that the proposed review is robustly transparent. Carbon Energy offers its expert experience to the reviewer, so that a reasoned and scientifically based conclusion can be realised. We fear that under the current proposal this might not be the case.

In anticipation, I will have the team at Carbon Energy contact Mr Grayson and your office in order to arrange meetings. Thank you once again for allowing me to keep you up to date.

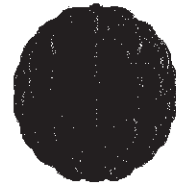
Kind regards



Dr. Chris Rawlings  
**Chairman**

cc. Director-General Department of Premier and Cabinet  
Attachment: Carbon Energy letter to Minister Cripps dated 27 March 2013

Released under RTI-DRG



**carbonenergy**

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Carbon Energy (Operations) Pty Ltd  
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27 March 2013

Hon Andrew Cripps MP  
Minister for Natural Resources and Mines  
PO Box 15216 City East  
Queensland 4002

Dear Minister

Thank you for your letter dated 22 March 2013, about the Independent Scientific Panel (ISP) Review and for outlining the process to move forward towards a policy for underground coal gasification (UCG) in Queensland.

With the State being home to "world leading UCG development," the future opportunity for Queensland to lead the world in the commercialisation and innovation of UCG could provide the State with access to significant new sources of energy as well as becoming an alternative energy hub and the global epicentre for pioneering this technology. As detailed in previous reports to Government, the UCG industry stands to provide far greater economic value to the State than the existing CSG industry.

We appreciate the opportunity to respond to the ISP Report and provide our initial view as to what is misleading or factually incorrect. Given our recent communications and cooperation to date, including our intended approach to engage an independent expert, we are surprised at the haste in which you have requested a response turnaround, effectively 48 hours from when it arrived at our office.

We take this process extremely seriously, as the outcomes impact on the viability of our business. Our shareholders and the broader international resources community are keenly awaiting a response. As detailed in our last letter (14 March 2013), we have engaged scientific experts to assist in producing the most thorough response possible. While we have, as requested, detailed a response to you today, this is our initial and interim response.

We intend to provide you with the outcomes of the ISP Review from an independent expert, who has not been limited as to how they can respond.

Although we welcome a Peer Review process it would be impossible to accept the outcome of any review that had no interaction with the material or the proponents that in part informed

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the ISP – indeed it would be difficult not to see the outcome of such a process as only confirming the ISP rather than reviewing it. The ISP Report itself acknowledges the valuable contributions of dealing the proponents, with “a great deal of useful information and lessons,” gained from interacting with the companies involved.

Throughout the process we have been advised that the ISP Report would seek industry consultation, however the meagre time given to respond to the report hardly seems thorough and inclusive.

The Peer Reviewer also needs to be informed of information in the Report that has been deemed incorrect, taken out of context or is misleading. Noting that one of Carbon Energy’s concerns is that there was no industry consultation until now, we would not agree with a review process that does not include proper consultation.

For the response to be informed, thorough and stand-up scientifically it is required that the Peer Reviewer has access to:

- Data used to draw conclusions – we would be happy to extend the commercial in confidence provided to the ISP also to the Peer Review so they are adequately informed to make a scientific response.
- New data – Information used in the report is dated. Advances have since been made. In order to make the most thorough scientific based Peer Review new technical information should be made available. We would also welcome the opportunity to provide the Peer Reviewer any additional or new information as requested by them.
- Inaccuracies and assumptions in the Report – as detailed we have noted inaccuracies and assumptions that have lead to the ISP Report taking information out of context. If the proponents are unable to provide new information or highlight areas of concern, the Peer Reviewer is not being provided a complete picture.

We note the Department’s concern that supportive data provided to the ISP and other proprietary information might be commercially confidential. Nonetheless, as the report had access to such information we believe any review should also have such access and should it be necessary we would happily provide the necessary Confidentiality Agreements that would both meet the Department’s concern to protect such information while affording the reviewer the necessary information to properly test the assumptions and conclusions.

#### Peer Review Process – Candidates for the Review

In response to your request for our view on the shortlisted Peers we appreciate how difficult it is to find an expert with suitable UCG experience. From our experience the candidate most capable for a peer review must have the following expertise:

- A world class leader in risk based approach engineering
  - Risk management procedures and governance principles
- Technical aspects of resource recovery
  - Experience and understanding of coal basins and coal deposits, and the factors affecting mining and exploitation
  - Geotechnical practices to control strata deformation and fluid movement in natural and induced permeability around openings
  - Regional hydrology of confined aquifers and modelling of gas and water inflows and outflows around excavations/boreholes



- Coal gasification processes, in particular the processes relevant to underground coal gasification panels
- Products of coal pyrolysis, their creation, dispersal and mitigation in natural groundwater systems

#### Release of the ISP Report

In your letter dated 22 March 2013, you state that it is the government's intention to release the ISP Report given the high level of public interest in the UCG industry. We reiterate that the submissions to the ISP were provided by the proponents in good faith on the understanding that the ISP Report would remain Cabinet-in-Confidence. It is not reasonable that the ISP report be released.

In the spirit of cooperation we request to be provided with the opportunity to work with your office on any public announcements so that we can keep the market fully informed.

Since our submissions to the Review process have been provided, significant further data has been collected. Additionally the ISP Report contains minor inaccuracies and elements that are clearly misleading. Releasing the ISP Report into the market without amendment will be commercially damaging to our company.

Arguably, any stated intention to release the report in its current form would also presume the outcome of the peer review.

#### UCG Operational Depth Limitations

As previously raised with you, we have strong concern regarding the strict specification of depth limitation of UCG operations. In-line with all information provided to the ISP, Carbon Energy has been operating UCG successfully at 200m for the past 5 years. Additional information from over 20 months of operations in producing syngas at these depths can also be provided. The ISP Report has not identified any ongoing safety or environmental impediments in our operations over the course of our pilot.

A significant portion of the Company's shareholder value is represented by our certified 2P UCG Gas Reserve of 742PJ on our granted MDL374. Imposing a limit on the depth of operation would sterilise our resource and significantly undermine the viability of the Company and destroy shareholder value.

With our successful record of operating at 200m and demonstrated operation without any on-going environmental harm, Carbon Energy does not agree in particular with the major recommendations of operating at a depth of greater than 600 metres.

While operating at 600 metres will have a different and lower risk profile than operations at 200 metres. By following a risk based approach, as recommended by the ISP; which is also accepted and endorsed by Carbon Energy, it is highly likely that operations at 200 metres will be fully acceptable, as we have demonstrated to date.

#### Economic and Social Benefits of UCG

The original Terms of Reference for the ISP stated that the government's report on a potential UCG industry would include the benefits and costs of a UCG industry. The ISP was

to focus on the technical and environmental aspects, and the government was to consider the benefits and costs in relation to the social and economic impacts.

A separate submission was provided by Carbon Energy to the Department of Natural Resources and Mines in May 2012, "*UCG – Costs and Benefits – Economic and Social Impacts*". We have attached a copy of that submission, and highlight some of the significant benefits to the State and its people below:

- It is estimated that more than 135,000 PJ of energy generating more than \$42 billion in royalties could be economically recovered by UCG in Queensland that could not be recovered economically by other mining methods. This compares to the currently identified 33,001 PJ of CSG reserves in Queensland<sup>1</sup>.
- A new UCG industry will also provide employment opportunities in regional Queensland, contributing to regional economic growth and development.
- Carbon Energy has proven that electricity can be generated from syngas. There is upward pressure on electricity prices and also on domestic gas prices with the CSG to LNG industry focused on the export market. UCG syngas is less expensive to produce than conventional energy sources, which may lead to reductions in gas and electricity prices relative to those other sources. UCG syngas can be processed into Synthetic Natural Gas (SNG) which could be piped from Bloodwood Creek via the Roma to Brisbane gas pipeline.
- Introduction of more diversity in the energy sector would enhance energy security and also provide a revenue buffer for State government royalties and taxes against resource booms and busts.
- Carbon Energy's keyseam<sup>®</sup> design has consistently produced much higher energy value gas (25-50% higher) for a longer period than any other designs anywhere in the world using air blown process. Queensland has the opportunity to become a world leader in this technology, and reap the multiplier effects that this will bring from commercialisation of the industry in this State.
- Syngas can also be used to produce liquid fuels that are cleaner and superior in quality to conventional refinery fuels, at a competitive price, providing a buffer against rising world oil prices.
- UCG enables use of poor quality and/or deep coal resources and coal seams with unfavourable geology or for other reasons may be difficult or uneconomical to mine.
- UCG can recover up to 80% of the calorific value of coal, which is significantly greater than any other extraction method. More coal is recovered than conventional underground coal mining because UCG gasifies the entire coal seam and avoids resource losses in coal extraction and processing.
- UCG delivers 20 times more energy from the same resource than is possible with coal seam gas (CSG) without the adverse impacts on water that have raised concerns about CSG.

Since that submission, the Queensland Gas Commission has reviewed the supply of domestic gas and recommended a gas reservation policy.

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<sup>1</sup> *Australian Gas Resources 2012. (DEEDI, 2012). Department of Resources, Energy and Tourism.*

While the Government has decided not to pursue domestic gas reservation, it has signalled its intent to monitor the supply of gas to ensure that domestic users have access to gas. Risking the economic benefits that UCG technologies can offer, would appear inconsistent with the Government's stated policy objective of ensuring sufficient gas supply for both export and domestic markets.

In making this point, the plants have operated with no on-going environmental harm.

#### Development and Demonstration of the Rehabilitation Plan

Carbon Energy agrees with the recommendations about adoption of the LOPA methodology, and is willing to engage with the government and its advisors on developing guidelines for site selection.

In my previous letter dated 14 March 2013, we suggested that the development and proving of cavity rehabilitation should form part of a normal EIS process. As with other Resource industries, the UCG industry could maximise environmental regulation by following an existing government process already in place and accepted by industry. Notably, there can be no commercial scale development without Government approval which would be informed by the EIS and the demonstration plant operations in the interim. There is no necessity to arbitrarily discount UCG before that time. This approach would be consistent with the LNP election commitments that undertook to be technology neutral and the EIS process – the process applicable to all developments – would safeguard the LNPs additional commitment to insist on world's best practice with stringent environmental and social safeguards.

To the extent the Government wants additional comfort; following discussions with DEHP, Carbon Energy has recently decommissioned its second trial panel (i.e. air injection and thus gasification has ceased). We have a strategy for determining rehabilitation requirements and are currently working on implementing that strategy, with the assistance of groundwater remediation experts including a laboratory in North America which is one of the international leaders in the application of in-situ technologies.

Carbon Energy has assumed the reference to "decommissioning used throughout the communications to date is as it's defined on page 8 of the ISP Report and we support this definition.

The ISP Report has concluded that world's best practices should be established for cavity rehabilitation. We agree and are also determined to adopt world's best practice in rehabilitation, which is both environmentally and economically sustainable for a commercial UCG operation.

As requested the company contact to interact with the Department of Environment and Heritage Protection is Anne Ernst, HSE&C Manager, who can be contacted on 07 3156 7706.

#### Government Commitment to Outcomes

Our understanding from your letters dated 26 February 2013 and 22 March 2013 is that demonstration that successful rehabilitation is possible is the only substantive issue that is holding up the government's approval of the UCG industry in Queensland. To provide some

certainty to our Board and shareholders, we are seeking the government's commitment that, if positive outcomes are achieved through the demonstration that successful rehabilitation is possible, then this will clear the way for a positive policy outcome for UCG in Queensland. It is understood that there will still be a need for Carbon Energy to obtain the appropriate approvals through tenure, EIS and development approval processes, as is the case for any resource project.

Yours sincerely



Morné Engelbrecht  
Chief Executive Officer (Acting)

Released under RTI - DPC



Pages 524 through 549 redacted for the following reasons:

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Exempt Sch.3(8)(1) Breach of confidence

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**Sarah Partosh**

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**From:** The Premier  
**Sent:** Wednesday, 3 April 2013 8:57 AM  
**To:** The Premier  
**Subject:** Moratorium on Coal Seam Gas

**Importance:** High

Subject: Moratorium on Coal Seam Gas

Title: Mrs

First Name: [Redacted] s.73 Personal Information

Family Name: [Redacted]

Email: [Redacted]@yahoo.com.au

Phone: [Redacted]

-----  
Address: [Redacted]

Town: [Redacted]

State: [Redacted]

Postcode: [Redacted]

Email: [Redacted]@yahoo.com.au  
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Comment:

Hi Premier Newman,

After watching the Four Corner's episode on coal seam gas I would seriously urge you to put a moratorium in place. This industry has deliberately left out the most crucial information regarding the environment. Not to have any information on the effects on our groundwater is almost unbelievable. Can you imagine the state this state will be in in a few years? The Condamine river is bubbling!!! So there goes our farms - our food industry, there goes our fresh water, our fish, our reef, our whole ecosystem... So what happens to us all? How do we live?

Also the coal mine should be immediately scrapped...we need our reef that is our biggest tourist drawcard! This employs so many people and we need our marine life. Gladstone is a mess. People are leaving Gladstone due to pollution and birth defects.

I can't understand why the Federal and State Government sold us out. Where is the vision for this country?

Regards [Redacted]

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s.73 Personal Information  
[Redacted]

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3 April 2013

Premier Campbell Newman  
P O Box 15185  
City East Q 4002

Dear Premier

RE: Coal Seam Gas operations in Queensland

I am writing to support your calls for a thorough investigation of Coal Seam Gas industry approval processes and activities in Queensland.

Many Queenslanders have felt uneasy about the previous Labor government's approval of major Coal Seam Gas operations in our state over the past few years.

The ABC's Four Corner's report on Coal Seam Gas, which aired last Monday evening, raised many alarm bells concerning the rushed approval process for these activities, including the lack or absence of baseline studies, impact on the Artesian basin and high noxious gas emissions. It highlights that there is indeed cause to be gravely concerned about this industry and the destruction it may potentially cause to our State.

Sir, I believe we need this industry to receive far greater scrutiny, and hopefully a full moratorium on all operations, until the full facts on environmental impacts are established. Please rectify the mistakes of the previous administration immediately before more potential harm is done.

Our environment is priceless and not for sale, even though the lure of profits from an offshore company (in this case, British Gas) may be very tempting.

Thank you in advance for your help.

Yours sincerely

[Redacted]

## Sarah Partosh

---

**From:** The Premier  
**Sent:** Wednesday, 3 April 2013 12:26 PM  
**To:** The Premier  
**Subject:** coal seam gas

**Importance:** High

Subject: coal seam gas

Title: Mr

First Name: [Redacted]

Family Name: [Redacted]

Email: [Redacted]@gmail.com

Phone: [Redacted]

-----  
Address: [Redacted]

Town: [Redacted]

State: [Redacted]

Postcode: [Redacted]

Email: [Redacted]@gmail.com  
-----

Comment:

with out a healthy water we can't have healthy food or people How much will that cost the government to clean up in the future this country needs to stop coal seam gas just look at America Witch is payed by the people witch is you and me. they don't make this the next Asbestos.please fix this messSocial >

There are approximately 134,000 farm businesses in Australia, 99 percent of which are family owned and operated. Each Australian farmer produces enough food to feed 600 people, 150 at home and 450 overseas. Australian farmers produce almost 93 percent of Australia's daily domestic food supply.

As of 2010-11, there are 307,000 people employed in Australian agriculture. The complete agricultural supply chain, including the affiliated food and fibre industries, provide over 1.6 million jobs to the Australian economy.

Economic >

The agricultural sector, at farm-gate, contributes 3 percent to Australia's total gross domestic product (GDP). The gross value of Australian farm production in 2010-11 was \$48.7 billion.

Yet this is only part of the picture. When the vital value-adding processes that food and fibre go through once they leave the farm are added in, along with the value of all the economic activities supporting farm production through farm inputs, agriculture's contribution to the GDP averages out at around 12 percent (or \$155 billion).

Australian farmers export around 60 percent of what they grow and produce. Australia's farm exports earned the country \$32.5 billion in 2010-11, up from \$32.1 billion in 2008-09, while the wider agriculture, fisheries and forestry sectors earn the country \$36.2 billion in exports. The value of our farm exports, and indeed the future of Australian agriculture, depends largely on conditions in overseas markets, due to our high level of exports.

Australian farmers continue to face the challenge of declining terms of trade in agriculture, yet remain internationally competitive through efficiencies and productivity growth. The growth in the farm sector has increased steadily over the 30 year period from 1974-75 to 2003-04 at an average rate of 2.8 percent, consistently out-performing other sectors. In more recent times, agricultural productivity growth has slowed to 1 percent per



annum, illustrating the need for an increased spend on research and development to ensure the industry can meet the food and fibre needs of the growing world population.

Released under RTI - DPC

**Sarah Partosh**

---

**From:** The Premier  
**Sent:** Wednesday, 3 April 2013 6:46 PM  
**To:** The Premier  
**Subject:** Coal seam gas

**Importance:** High

Subject: Coal seam gas  
Title: Mrs  
First Name: [Redacted] s.73 Personal Information  
Family Name: [Redacted]  
Email: [Redacted]@bigpond.com  
Phone: [Redacted]

-----  
Address: [Redacted]  
Town: [Redacted]  
State: [Redacted]  
Postcode: [Redacted]  
Email: [Redacted]@bigpond.com  
-----

Comment:

I was alarmed to see last week's Sixty Minutes program about coal seam gas in western Qld and the lack of detailed ecological investigations by the miner especially in relation to water supply. The week before a program was shown on SBS that showed exactly the same thing had happened in some part of USA - fracking in relation to coal seam gas - leaving the area a wasteland and farmers having to walk off their land. I do hope our government can see beyond the dollars.

Released under RTI - DPC

**Sarah Partosh**

---

**From:** The Premier  
**Sent:** Thursday, 4 April 2013 7:58 PM  
**To:** The Premier  
**Subject:** Concern about coal seam gas expansion in Queensland  
**Attachments:** Campbell Newman Coal Seam Gas.pdf

**Importance:** High

Subject: Concern about coal seam gas expansion in Queensland

Title: Ms

First Name: [Redacted: s.73 Personal Information]

Family Name: [Redacted]

Email: [Redacted]@gmail.com

Phone: [Redacted]

-----  
Address: [Redacted]

Town: [Redacted]

State: [Redacted]

Postcode: [Redacted]

Email: [Redacted]@gmail.com  
-----

Comment:

Dear Mr Newman

Please find attached a letter expressing my concern about the expansion of the coal seam gas industry in Queensland.

I look forward to your considered response.

Regards

[Redacted Signature]

Released under RTI - DPC

Campbell Newman  
Premier of Queensland  
PO Box 15185  
City East  
Queensland 4002

4 April 2013

Dear Mr Newman

I am writing to express concern about expansion of the coal seam gas industry in Queensland.

After watching Four Corners on Monday night, coal seam gas has been a hot discussion topic amongst my friends, family and colleagues. We share similar concerns about:

- The dramatic scale of coal seam gas projects. They affect thousands of hectares of land and vast aquifers. The scale is so different from other industrial developments.
- Intrusion of industrial development into the places where people live, agricultural land, and natural areas.
- Poor understanding of environmental impacts. Absent are the baseline data, definition of potentially affected areas (both land and water), and modelling based on sensible assumptions that environmental assessments require.
- Greenhouse emissions of energy produced in Queensland going up, not down. If it is true that CSG projects produce substantial fugitive methane emissions, coal seam gas may have a greenhouse impact greater than coal.

We expect you to take action. Thank you for supporting an inquiry into the environmental impact assessments of the projects discussed on Four Corners. We also want you to:

- Say 'no' to new projects where environmental impacts are significant or not fully understood. Approvals with thousands of conditions are not enough.
- Work with scientists and communities to decide where coal seam gas projects are unacceptable, and not allow projects in those places.
- Expand the renewable energy sector in Queensland. We want energy we use here, and energy we export, to produce minimal greenhouse emissions.

You appreciate the importance of economic development in Queensland. Please make sure the coal seam gas industry does not jeopardise the natural resources our economy depends on.

Regards





# Santos

## GLNG Project

8 April 2013

Digitised?	YES	NO
If digitised, this is now an ELECTRONIC DOCUMENT. ENTER ALL DATA in TRIM.		
Related Records		
Date Received	15 APR 2013	in DPC
Document No:		
File No:		
Tracking Folder No:		

Dear Premier

I am writing to provide you with information in response to a recent story on Four Corners regarding the coal seam gas industry.

The story contained a number of inaccurate claims about the approval process for GLNG, Santos' US\$18.5 billion project to take coal seam gas from fields around Roma via a 420km pipeline to Gladstone, where it will be liquefied for export.

Approval of the Santos GLNG Project was a comprehensive process that spanned three-and-a-half years. It involved three rounds of public consultation and nearly 20,000 pages of environmental impact assessment.

During this process, detailed assessments were provided on issues such as land, nature conservation, groundwater, surface water, noise, cultural heritage, social impact and greenhouse gases. These are all publicly available on our website at [www.santosglng.com](http://www.santosglng.com).

Part of these detailed assessments included a 208-page groundwater impact assessment. The assessment was publicly released for community consultation in late 2009 and was considered by the Coordinator-General when approving the project in May 2010.

The quality of our groundwater modelling was confirmed by its consistency with the Queensland Water Commission's Underground Water Impact Report, which was released last year.

The Queensland Coordinator-General concluded that the 20,000 pages of information provided met the requirements for impact assessment and he subsequently approved the project subject to 1,200 stringent conditions.

Santos GLNG takes very seriously its role in protecting water resources and has been doing so throughout its 50 years of operating in regional Queensland, including 16 years of coal seam gas operations.

We have a team of more than 35 hydrogeologists, engineers and water experts dedicated to researching, monitoring and managing surface and groundwater in the areas in which we operate.

We have an extensive water monitoring program in place, initially rolled out in 2010, and we make our water monitoring results publicly available via our water portal at [www.santoswaterportal.com.au](http://www.santoswaterportal.com.au).

Please find enclosed a booklet outlining our approach to coal seam water management. This information has also been provided to all of our landholders in Queensland.

If you would like any further information, please visit our website at [www.santosglng.com](http://www.santosglng.com) or contact Mr Brad Burke, General Manager, Public Affairs, on 07 3838 5747 or at [brad.burke@santos.com](mailto:brad.burke@santos.com).

Yours sincerely,



**Trevor Brown**  
Vice President, Queensland

PH: +61 7 3838 3000  
Fax: +61 7 3838 3350  
[santosglng.com](http://santosglng.com)

Santos Place,  
Level 22 / 32 Turbot Street  
Brisbane QLD 4000 AUSTRALIA  
GPO Box 1010, Brisbane QLD 4001

GLNG is a Santos PETRONAS Total KOGAS project.

Santos | PETRONAS | TOTAL | KOGAS

## Sarah Partosh

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**From:** The Premier  
**Sent:** Tuesday, 9 April 2013 9:34 AM  
**To:** The Premier  
**Subject:** UCG Decision

**Importance:** High

Subject: UCG Decision

Title: Mr

First Name: [Redacted]  
Family Name: [Redacted]

Email: [Redacted]@gmail.com

Phone:

-----  
Address: [Redacted]

Town: [Redacted]

State: [Redacted]

Postcode: [Redacted]

Email: [Redacted]@gmail.com  
-----

Comment:

Dear Mr Newman,

I'm writing to you today for some clarification on the Government's stance on Underground Coal Gasification (UCG).

I understand that several UCG pilot projects have been running of the past few years with varying success. In personally reviewing these projects it has become apparent to me that the CSIRO developed technology currently utilised by Carbon Energy appears to be the most advanced, technically proven, and safest of those being piloted.

I understand that environmental concerns are at the forefront of any decision making process with regards to the implementation of any new technology, and strongly believe that, given strict operating parameters and monitoring, this particular UCG process could be of great benefit to not only Queensland, but the entire East Coast of Australia, in that it could ensure a cheap, efficient, and reliable delivery of gas to the domestic and potential export markets. This would have obvious flow on benefits to the Queensland government by way of royalties and investment in UCG facilities, downstream power generation, and manufacturing industries.

So as you can imagine after several years now as pilot projects, I'm eagerly awaiting some clarification from your government on whether this technology will be permitted to move forward from pilot projects to commercial projects in Queensland.

I was informed some years ago that such a decision would be handed down by the government by the end of 2012 but this date has come and gone and we are now into the middle of March 2013 and still no news.

I would be very grateful if you could provide an update as to when a decision will be made public whether to allow these projects to proceed to commercial status.

Thank you for your time and I hope to hear from you on this matter at your earliest convenience.

Yours Sincerely,

Mr [Redacted]

s.73 Personal Information

[redacted]@gmail.com

Released under RTI - DPC

**Sarah Partosh**

---

**From:** [Redacted] s.73 Personal Information [Redacted]@gmail.com>  
**Sent:** Tuesday, 9 April 2013 11:43 AM  
**To:** The Premier  
**Subject:** Coal seam gas, illegal koala legislation plus 5 other items  
**Attachments:** Campbell newman 19th april 2012.docx

[Redacted]

Postal Address

[Redacted]

Property Address

[Redacted]

PH [Redacted]

FAX [Redacted]

Email [Redacted]@gmail.com

Premier Campbell Newman

Postal Address

PO Box 15185

City East Q 4002

Email [thepremier@premiers.qld.gov.au](mailto:thepremier@premiers.qld.gov.au)

9<sup>th</sup> April, 2013

Re: Coal seam gas, illegal koala legislation plus 5 other items

Dear Premier,

I again write to you regarding the destruction caused by the coal seam gas which can not be repaired. According to the Sunshine Coast newspaper "The Sunshine Coast Daily" April 6<sup>th</sup> instant and written by special writer Owen Jacques, there has \$600 million dollars given to your Government to guarantee the repairs done to 3956 gas wells, which is \$156,723 per well.



Once the drillers have finished per well (say 20 years time) it would be impossible to repair the damage done to the underground streams. Money will not help.

When drillers are fracturing the coal seams to gain the gas they use a black poisonous powder and only 40% of which is retrieved. This means the underground streams will be poisoned (what is left of them) that runs into all the rivers in the area. This will mean that you will have dead fish, cows, horses and human beings.

-  
All subdivisional development stopped.

-  
It is impossible to acquire land to subdivide into homesites or industrial land with the fear of coal seam gas drillers moving in and occupying the area for say 20 years after we could have spent hundreds of thousands of dollars on the project. It is stated that they can not drill within 2 km of a built up area and that shows the lack of knowledge displayed by the Government, BECAUSE the underground streams could run for 100km. This would ruin all the areas relying on underground water, such as the Brisbane Valley (Esk to Tent Hill to the Blackall Range, Maleny to Montville and all the areas between that and Moreton Bay)

I ask that no drilling (exploration) be carried out in the Southeast Queensland area, otherwise it will effect and dry up Brisbane River, Southpine River, Caboolture River, Obi Obi Creek, Four Mile Creek, One Mile Creek, Downfall Creek, Logan River all of which rely on supplies from underground streams.

From the document on "ABC Four Corner" Television program last Sunday 31<sup>st</sup> March, 2013, Ms Simone Marsh was given just days to approve the applications for multimillion dollar gas wells by Santos and Queensland Gas Company (QCG) and such "approvals" were given without environmental impact studies, which is illegal.

Catastrophe

If coal seam gas drilling continues throughout Queensland the place will be honeycombed and ruined.

Koala illegal legislation

IT IS ILLEGAL FOR ANYBODY TO IMPOSE AN INCUMBORANCE FREEHOLD TORRENS TITLE, which has happened by the koala habitat legislation. The Moreton Bay Regional Plan is now superseded by an overlay mainly coloured in green affecting freehold title making it impossible to develop at Warner, Brendale, Strathpine, Bray Park (it even includes Southpine Road, Gympie Road, Samsonvale Road, Coorparoo Road, Warner Road) There are at least 50,000 cars a day travel through these areas and it means the council has to acquire their permission if there are any road works affected by the green

overlay. It even includes SEQEB 100 acre substation. The act has been written incorrectly and should not encumber any freehold title.

BILLIONS OF DOLLARS OF COMPENSATION WILL BE ENTITLED TO CLAIM BECAUSE OF THIS ILLEGAL LEGISLATION. It should be noted that there are no koalas in the areas mentioned above and that guard dogs are required to be locked up between 6pm and 7am when they are required especially in Brendale a thriving industrial area. It should note also it is applicable to domestic dogs. This shows the mistakes that now need immediate attention.

Therefore I ask for a round table conference as per my letter dated 19<sup>th</sup> April last year, a copy of which is attached which explains the other five items needing immediate attention.

Yours sincerely,

s.73 Personal  
Information

p.s It is rumoured that the State Government is negotiating with the UDIA that headworks will be charged on town houses totally \$38,000 plus. That means no more townhouses or homes as the cost will be prohibitive. At present there is mass unemployment with builders, engineers, town planners, construction workers, road makers and council staff.

**Sarah Partosh**

---

**From:** The Premier  
**Sent:** Tuesday, 9 April 2013 4:26 PM  
**To:** The Premier  
**Subject:** CSG exploration permits

**Importance:** High

Subject: CSG exploration permits

Title: Mr

First Name: [Redacted] s.73 Personal Information

Family Name: [Redacted]

Email: [Redacted]@bigpond.com

Phone:

-----  
Address: [Redacted]

Town: [Redacted]

State: [Redacted]

Postcode: [Redacted]

Email: [Redacted]@bigpond.com

-----  
Comment:

Dear Campbell Newman can you tell me why CSG exploration permits were issued for every house block in Ogmoores. I did verify this with the Dept of Mines & Energy under the Bligh government. But I was told the company wouldn't drill on my house block then why issue them with a permit to do so.

Released under RTI - DPC

PO Box 102, Toowoomba, Qld, 4350

Phone +61 7 4688 1327

Email enquiries@gfcq.org.au

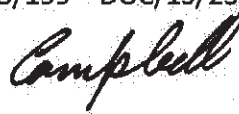
Web www.gfcq.org.au

17 April 2013

The Honourable Campbell Newman MP  
Premier for Queensland  
PO Box 15185  
CITY EAST QLD 4002

Your ref: ERP/PL – TF/13/159 – DOC/13/23508

Dear Premier Newman



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If digitised this is now an ELECTRONIC DOCUMENT Enter FILE NUMBER / DATE OF PPM		
4 3 MAY 2013		Date Received in DPC
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Tracking / Ref No.		

I refer to your recent correspondence regarding issues raised by [REDACTED] of Kumbarilla, about coal seam gas activity in his area.

The Commission has recently received an update on this matter from Mr Bill Date, the Director of the Coal Seam Gas Compliance Unit (CSGCU) within the Department of Natural Resources and Mines. The CSGCU have reported that, together with representatives from QGC, they have held a positive meeting with [REDACTED] on 19 March 2013, to constructively discuss all of his concerns.

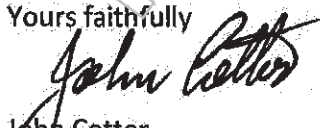
The agreed outcomes from that meeting are as follows:

- QGC to provide [REDACTED] with a number for complaints – these complaints would be addressed by local management.
- QGC to provide the name of the local indigenous group who did the cultural heritage inspection
- QGC to provide internet link to jobs site
- QGC to approach Western Downs Regional Council to re-erect Wattle Drive sign post
- There would be a continuation of dust suppression 3 – 4 times per day
- Any rig movement, such as work over rigs and drilling on nearby properties would be preceded by notification by mail and telephone at least 10 days in advance
- Dependant on location of the well on the neighbouring property QGC would look into the possibility of erecting a boundary fence.

The CSGCU have advised that, although this case is now deemed essentially 'closed,' their staff will continue to monitor the progress of this situation, and will contact [REDACTED] in three months to ensure ongoing satisfaction and cooperation with these outcomes.

Please do not hesitate to contact myself if you have any further queries in regards to this matter.

Yours faithfully



John Cotter  
Chairman  
GasFields Commission Queensland



**Sarah Partosh**

---

**From:** The Premier  
**Sent:** Saturday, 1 June 2013 1:51 AM  
**To:** The Premier  
**Subject:** UCG Queensland

**Importance:** High

Subject: UCG Queensland

Title: Mr.

First Name: [Redacted] s.73 Personal Information

Family Name: [Redacted]

Email: [Redacted]

Phone: [Redacted]

-----  
Address:

Town:

State:

Postcode:

Email: [Redacted]

-----  
Comment:

Dear Mr. Campbell Newman,

i am a german shareholder of an australian company and hopefully awaiting a decision about UCG in queensland.  
Will there be a decision in the near term future?

Best regards from a rainy germany

[Redacted]

Released under RTI - DPC

**Sarah Partosh**

---

**From:** The Premier  
**Sent:** Thursday, 30 May 2013 1:31 PM  
**To:** The Premier  
**Subject:** Underground Coal Gasification

**Importance:** High

Subject: Underground Coal Gasification

Title: MR

First Name: [Redacted] s.73 Personal Information

Family Name: [Redacted]

Email: [Redacted] com.au

Phone: [Redacted]

-----  
Address: [Redacted]

Town: [Redacted]

State: [Redacted]

Postcode: [Redacted]

Email: [Redacted] com.au  
-----

Comment:

Dear Mr Newman,

This is the 2nd letter I've written to you on the subject of Underground Coal Gasification (UCG) and the government decision and stance and future for this technology in Queensland.

I feel they answered to my last email basically got the political curve ball and pretty much went unanswered.

I will be upfront like in my previous email and tell you that I'm an investor in this fantastic technology and have been waiting for several years now for the government to get it's act together and make a decision, I was told by the previous Bligh government that this decision would be made by December 2012 and then when your government came to power it was early 2013, well as you are aware 2013 is almost half way gone and still none the wiser on what the future will be for this technology.

I must say I feel that new investments and technologies in this state are currently being treated with contempt and poorly and inadequately supported. I as a Qld voter and investor in this states future I feel that I deserve an answer on this matter and not a government curve ball, avoiding trying to avoid this important issue.

I soon hope to hear your response to my important query.

Thank you

[Redacted]

**Sarah Partosh**

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**From:** [REDACTED]@hotmail.com>  
**Sent:** Monday, 27 May 2013 9:51 AM  
**To:** The Premier  
**Subject:** RE: Food & water security

As per your request for full name and address please find below

[REDACTED]

With regard to 'due course' How long might that be?

With regard to 'if appropriate' I would suggest that on a matter as serious as food security and the future plan for Queensland (which I assume the people of Queensland's questions and concerns will be taken into account) a reply would be appropriate.

Sincerely

[REDACTED]

---

**From:** The.Premier@premiers.qld.gov.au  
**To:** [REDACTED]@hotmail.com  
**Date:** Thu, 16 May 2013 09:51:25 +1000  
**Subject:** RE: Food & water security

Thank you for your email to the Honourable Campbell Newman MP, Premier of Queensland. The Premier appreciates the time you have taken to contact him with your comments. Please be aware that a formal response will only be provided to messages that contain a **full name and postal address**. As the Premier receives a large amount of correspondence, a response will be provided, if appropriate, in due course.

Yours sincerely

Office of the Premier

---

**From:** [REDACTED]@hotmail.com]  
**Sent:** Thursday, 16 May 2013 9:39 AM  
**To:** The Premier  
**Subject:** FW: Food & water security

---

Premier Newman,

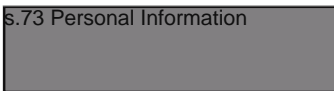
As I write this email I am becoming increasingly concerned about the future security of food and water in Australia. As you will be well aware, we live in a country that suffers at times from extreme drought leaving our farmers struggling in the extreme.

At the moment I understand a future plan for Queensland is being put together (not before time) and this appears to be the perfect time to get things right. One would hope the 'vision' for QLD doesn't include the continued danger to all Australians by allowing the Coal Seam Gas fracturing process to continue. The risk of further polluting The great Artesian Basin and other aquifers is to great when looked at from the point of food and water security in the future. The lines, "Can't drink gas, can't eat coal" come to mind.

I would like to hear your opinion on CSG mining and in particular the 'fracturing' process used. The other thing I would like to know your thoughts on is, "Do you think it's a fair thing that QLD farmers don't have the right to refuse mining companies entry to their farms?"

Thanks in advance, for taking the time to respond.

Sincerely,

s.73 Personal Information  


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If you have received this email in error, please notify the author and delete this message immediately.  
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**Sarah Partosh**

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**From:** [REDACTED]@gmail.com>  
**Sent:** Tuesday, 28 May 2013 10:47 AM  
**To:** Pine.rivers@parliament.qld.gov.au  
**Subject:** koalas and coal seam gas

[REDACTED]

Postal Address

[REDACTED]

Property Address

[REDACTED]

**PH** [REDACTED]

**FAX** [REDACTED]

Seath Holswich

Shop 5A, 199 Gympie Rd, Strathpine  
PO Box 109, STRATHPINE CENTRE Q 4500  
Phone: (07) 3205 6779  
Fax: (07) 3881 1662

[Pine.rivers@parliament.qld.gov.au](mailto:Pine.rivers@parliament.qld.gov.au)

28<sup>th</sup> May, 2013

Dear Seath,

KOALAS

Following on from my letter to you on the 24<sup>th</sup> May, 2013, I have checked my submission to the Labor party in opposition to their proposed koala legislation to protect my property and found that there was one eucalypt tree mentioned on my property, no koala tracks. That tree has since been struck by lightning and destroyed.

There were 264 objections to the proposed legislation (including the Pine Rivers Shire council) and I was advised by the Labor party they considered my objection which was a lie because they ignored everything I said in it.

I intend to subdivide my land once the present Federal Government is defeated but it means that the area surrounding me cannot be developed which devalues my land. This means unless the act is corrected who will eliminate the encumbrances posed on the freehold titles? Massive compensation will eventuate. It is not only illegal what the Labor party have done but it is silly and I expect (like everybody else) that this will be corrected by the LNP who had a win of 78 to 7 proving that Anna Bligh and her Government where changing acts purely to get votes.

Koalas cannot live in the area which the overlay covers because of the residential and industrial development that has already happened and there are 50,000 cars a day which means that humans have trouble crossing the roads and if a koala tried to do that it would be instant death.

I request that you talk to your LNP president Bruce McIvor and the Premier Campbell Newman and advise me what can be done to eliminate this injustice.

### COAL SEAM GAS

Further to my letter on the 24<sup>th</sup> May, 2013, requesting a guarantee that there will be no coal seam gas drilling in Southeast Queensland I must add that you have the responsibility of protecting all that area between Tent Hill, Esk, Samford to Montville, which includes the Blackall range. This includes some of the best irrigated small crop and residential areas in Australia which all use underground water supply. Therefore this is part of the reason why we voted for the LNP at the last election because the Labor party was destroying the country side. The LNP is expected to protect it.

Therefore I await your response as the elected representative of the Dickson Pine Rivers area.

Yours sincerely

s.73 Personal  
Information

P.S Your attention should be also be drawn to the following problems.

1. Penalty rates (before shopping centres are forced to close because Gillard threatened to impose double time for all holiday and weekend work)
2. Headworks charges (to prevent Council charging up to \$5,000,000 to obtain approvals)
3. Electricity charges (developers pay all costs including transformers and underground power in advance – not as claimed by Federal Government the costs are caused by poles and wires to which they (the Government) contribute nothing)

4. Flying foxes who defecate over our dams and houses (shifting their habitats will have no effect on that)

5. Paralysis ticks

6. Fruit flies

Attention to these matters is requested urgently

Released under RTI - DPC

**Sarah Partosh**

---

**From:** s.73 Organisation [redacted]@hotmail.com>  
**Sent:** Sunday, 26 May 2013 10:13 AM  
**To:** The Premier (Ministerial); Premiers Master; The Premier  
**Cc:** Alan Jones; Andrew Cripps; Andrew Powell; Bill Date; brendan.barrett@originenergy.com.au; Brett Smith; Brian Monk; Cassandra Hough; catherine.tanna@bg-group.com; charmaine.aldridge@communities.qld.gov.au; Chris Bath; communities@ministerial.qld.gov.au; community@ggc.com.au; Dave and Cathy Monk; david.darvall@ehp.qld.gov.au; deborah.williams@bg-group.com; deputypremier@ministerial.qld.gov.au; Derek Fisher; Drew Hutton; drhelenfr@gmail.com; editorial@chinchillanews.com.au; education@ministerial.qld.gov.au; energyandwater@ministerial.qld.gov.au; enquiries@gfcq.org.au; gasfieldscommission@deedi.qld.gov.au; gasfieldscommission@qld.gov.au; Gayle Sainsbury; Healy, Samantha; Heidrich, Tony; Heiner Ian; Jack Dempsey; jamie.kemshead@bg-group.com; Jarrod Bleijie; John Cotter; john.cotter@gfcq.org.au; Lawrence Springborg; pumicestone@parliament.qld.gov.au; Mark; mccarthyj@couriermail.com.au; Michael Bretherick; minister.bates@ministerial.qld.gov.au; nikki.voss@originenergy.com.au; pauline.jacob@bg-group.com; penny\_hutchinson@health.qld.gov.au; Renee Hoare; Rhianwen Whitney; rob.millhouse@bg-group.com; Sam; senator.carr@aph.gov.au; Stephanie Smail; stephen.matheson@deedi.qld.gov.au; Tony Nunan; tony.abbott.mp@aph.gov.au; Tracey Winters; virgil\_kelk@health.qld.gov.au; tony.burke.mp@environment.gov.au  
**Subject:** IS CSG SAFE?

Attention: Premier Campbell Newman and Campbell Newman the person

Why will you not provide the information i requested.  
It is a simple question really:

IS CSG SAFE?

Why is this question so hard to answer?

If you can not answer this question Premier, then you need to rethink the CSG industry.

I find it extremely interesting that neither Government or CSG Companies are prepared to answer my simple question!

Regards

[redacted]



**Sarah Partosh**

---

**From:** Premiers Master  
**Sent:** Wednesday, 1 May 2013 4:04 PM  
**To:** The Premier  
**Subject:** FW: CSG industry and Carbon Energy Limited  
**Attachments:** Letter to qld gov..odt; shi zhengrong.odt

**From:** [REDACTED]@hotmail.com]  
**Sent:** Wednesday, 1 May 2013 4:02 PM  
**To:** Premiers Master  
**Cc:** Nrm@ministerial.qld.gov.au  
**Subject:** CSG industry and Carbon Energy Limited

For the urgent attention of the Premier of Queensland, The Hon Campbell Newman.

Released under RTI - DPC

To The Premier of Queensland  
Hon. Campbell Newman MP  
Department of the Premier and Cabinet  
Executive Building 100 George Street  
Brisbane Qld 4002

cc. Hon. Andrew Cripps MP  
Minister for Natural Resources and Mines  
Queensland State Government

May 2<sup>nd</sup> 2013

Dear Premier,

The following letter and attachment relates to Carbon Energy Limited (CNX) and the Coal Seam Gas Industry, and the stark differences in which they are being treated by Government. The attachment is a copy of correspondence recently sent to the Carbon Energy Limited CEO Morne Engelbrecht. This was initially intended for circulation to specific media bodies, plus departments of the federal government in addition to yourselves.

Circulation of the attachment together with appropriate covering letters is at present being held in abeyance awaiting comment from your government. I have held shares in the company going back to 2009 and intend to do all in my power to fight for a justifiable outcome for CNX, on behalf of other shareholders, and also on behalf of the taxpayers of Australia who have contributed large sums of R&D funding towards Carbon Energy's research program over the past decade via government grants.

  
Carbon Energy Share Holder

## **CSG and UCG :**

### **THE POTENTIAL SLOW DEATH OF A FLEDGLING PROVEN NEW RENEWABLE ENERGY INDUSTRY IN QUEENSLAND**

The Premiers Department and relevant government departments are undoubtedly aware of the pressure that the fledgling renewable energy company Carbon Energy Limited (CNX) is under. The company and their many shareholders have waited patiently for a policy outcome from the Queensland Government following the mid 2012 report by the government appointed "Panel of Experts" on the use of CNX's patented technology for producing underground coalseam gas (UCG). This long overdue policy was supposed to provide the basis on which the company could at last proceed to commercial production, of what has proved to be a cleaner, cheaper and more efficient source of energy than CSG.

Yet a number of mammoth CSG projects have recently been rubber stamped by various governments in Australia under conditions that have been brought into question because due process may not have been correctly observed. During 2011 and 2012 CNX were subjected to the most stringent environmental conditions during a twenty month long proof of concept process, which was highly successful and met all conditions necessary to meet government requirements. A release by the company to the ASX dated 29.4.13 provides further evidence of the success of the technology

*In addition, the apparent lack of government support for this new industry may be affecting decision making by international investors who have already demonstrated their early commitment to the use of Carbon Energy's patented technology, which is a genuine potential export earner for Australia. This source of export income is not subject to the vagaries of market conditions in the same way as commodities, and has the possibility of bringing hundreds of millions of dollars into Queensland over long periods.*

As reported by Mathew Carney in the recent Four Corners program the CSG industry in Australia may have received particularly favorable treatment by state and federal government departments in relation to some of their mammoth CSG projects, two of them I understand are in Queensland. By association the Carney report could be seen to underscore the unfavorable treatment Carbon Energy has received from the Queensland Government, particularly by the preceding government who appeared bent on pandering to the wishes of vested interests hostile to the introduction of competition to the energy sector.

Whilst recognising that the CSG industry is important to Australia's economy, one must also look at the circumstances of why only modest environmental standards seem to have been imposed on the international corporations behind the projects, as opposed to those being imposed on Carbon Energy Limited. Why has a decision by government been continually withheld, a decision which would go a long way to ensuring that the company's cheaper, cleaner energy can be made available to the Queensland marketplace, and certainly assist in the negotiations CNX is holding with the Chinese giant Shanxi Coal. (See accompanying letter.) *Why would any company either from within Australia or from overseas enter into an important long term contract utilising new technology when the party holding the patent cannot even get its technology accepted by its very own government.*

The previous government made it seemingly clear where its priorities were in relation to the CSG industry, as opposed to Carbon Energy's long drawn out proof of concept and its efforts to satisfy government demands. It begs the question "*where does the present government stand*"? A decade long research and development program, undertaken by some of Australia's brightest scientists and engineers from within the CSIRO and private enterprise at a cost of over \$100 million dollars of investment, is being held to ransom because for all intents and purposes the findings of the government appointed "Panel of Experts" remains in the "in tray"..

Jo Bjelke Petersen was one of the finest government leaders of the last century, a parliamentary figure who wasn't a mere politician but also a statesman of the highest caliber. His major

decisions were always made in the best interest of the state, no matter how politically onerous they may have been, and once made he never backed down, being prepared to take on the might of the unions and that of big business if it was in the interest of the state. It will take a lot of backbone and determination to take on the vested interests opposed to the approval of the Carbon Energy technology. Your government has shown sufficient signs of similar characteristics to that of Jo's government in taking steps that would in the medium and long term be in the state's best interest. I put forward your public service job cuts, refusal to sell the electricity utilities, and approving the Costco project as a few examples. One can only hope that those similar characteristics will be displayed in the case of Carbon Energy Limited.

I am aware that Carbon Energy's directors have a belief that your government appears to have been far more favorable to negotiate with than the Bligh government. But to date this has borne little or no fruit, certainly nothing that they have been able to announce to the market. It had been my intention to send this letter in an appropriate format, together with the attachment, directly to Four Corners and possibly other media bodies. However after a telephone conversation with Morne` Engelbrecht CEO of Carbon Energy Limited I believe the correspondence should firstly be presented to yourselves in hope of a positive response.

Should the company fail and lose its valuable and hard fought for patented technology to overseas interests then Australia loses an asset that could by now almost certainly be earning much needed export dollars, which could be assisting your government to reduce the \$85billion deficit gifted to you by the Labor Party. *As a matter of great urgency a policy decision, explanation, or comment of reassurance that the matter is in hand, is correctly deserved from the Queensland Government. Ongoing silence will not only result in further destructive devaluation of the company's standing on the ASX, but may also prove a negative in relation to the Shanxi Coal project negotiations.* The company and its many long term shareholders deserve an answer. From any perspective, should this small company falter and be placed in receivership, something which could be an unfortunate possibility, who should or would bare the responsibility for such an outcome.

**Attached is a letter which draws to the attention of the reader parallels between CSG and UCG; and separately the parallels between Carbon Energy's valuable patented technology and that developed by UNSW and later lost to the giant Suntech Power Co Ltd. The latter provides an insight into how much export dollar potential may be forfeited if CNX were to fall by the wayside due the negligence of others.**

s.73 Personal Information

Carbon Energy Shareholder



Attention Mr Morne Engelbrecht and the Board of Directors  
Carbon Energy Limited  
Level 9/301 Coronation Drive  
Milton Qld 4064  
April 25<sup>th</sup> 2013

Further to my previous correspondence dated April 9<sup>th</sup> and 12<sup>th</sup> 2013, the following letter will be released to the media at the end of this week. If you have any comments to make, as per my previous correspondence I invite your comment.

### **Carbon Energy Limited (CNX) and Suntech Power Co Ltd**

**What Parallels can be drawn between :**

- 1. The intellectual property rights held by Carbon Energy Limited (CNX) and of those now held by the giant solar panel manufacturer Suntech Power Co Ltd.*
- 2. Carbon Energy's advanced clean energy technology and the technology of the Coal Seam Gas (CSG) Industry.*
- 3. Why questionable government approvals for major CSG projects have been granted, as reported by Mathew Carney on a recent Four Corners program, whilst stonewall tactics by the Qld Government have prevented Carbon Energy utilising their proven cleaner energy technology from commencing production at Bloodwood Creek.*

**In relation to item 1, most importantly is the value of each companies intellectual property rights and how those those valuable assets have been drastically under valued by Australian Federal and State Government departments and Australian business across the board.**

**Both companies had their beginnings from within R&D departments backed by federal or state government. Suntech by researchers at UNSW and Carbon Energy by CSIRO scientists. Both the CSIRO and UNSW had received substantial backing from government**

departments and private enterprise. Both had outstanding teams of scientists perfecting the technology for producing cleaner energy.

In the early 1970's, Prof Martin Green and his team at UNSW commenced R&D on silicon cells for solar panels, quickly earning a global reputation as being front runners in cutting edge technology. Testament to Greens abilities was borne out by his team becoming the only foreign research group to be receiving financial backing directly from the US Government's Department of Energy.

Over the years, the UNSW team had received backing for their research from a variety of sources, then in 1995 after deciding to commercialise technologies the team had been developing, Professors Green and Wenham, with the universities support received a \$47 million investment from the NSW state owned electricity utility Pacific Power. Pacific Solar was created by the partnership to further the research and development towards commercial production. The deputy director of research and development was Shi Zhengrong who had completed his PhD at UNSW in the early 1990's.

After a number of years working with Pacific Solar, and with insufficient funds for Pacific Solar to progress towards becoming a major producer, Shi Zhengrong submitted a business plan to the Wuxi government to build a solar panel production facility in China, which would utilise the UNSW technology. With a \$5 million investment from the Wuxi Government Suntech Power was born and within a decade became the largest manufacturer of solar panels in the world, placing Shi among the worlds wealthiest individuals.

Shortly after Shi's departure from Australia, Pacific Power refused to refinance the business. Funds were eventually obtained from Italy but that also quickly dried up, after which, the all valuable UNSW technology was bought out by a German company, which in 2010 was in turn bought out by Shi. This provided Suntech Power with an Australian Technology that had cost over \$100 million to perfect as well as bumping several highly qualified Australians into prominent positions with Suntech.

*For a few years prior to the German deal, at least intellectual property*

*rights revenue had flowed back into Australia until that too was lost.*

Regardless of Suntech's recent receivership problems, the story of how Australian research and development was at the heart of the emergence of Suntech Power to at one time dominate the global market in the manufacturing of solar panels parallels a story that has been repeated far too often.

In June 2011, Dr Eric Knight, a visiting Research Fellow at Oxford University and a research associate at the ANU Centre for Climate Economics and Policy, had an article published in "The Monthly", a publication of monthly essays on current affairs. Dr Knight's essay follows the path of research and development by Prof Green and that of Shi Zhengrong's path to building Suntech's success whilst utilising UNSW's technology. At the heart of Dr Knight's essay is the way in which intellectual property rights in Australia continue to be overlooked and grossly under valued by both government and commerce.

*Is Carbon Energy Limited heading down the same road?*

*What parallels can be drawn between the two companies intellectual property rights, developed so successfully by highly qualified Australian researchers?*

Carbon Energy was formed in 2006 following a joint venture between Metex and the CSIRO to develop and commercialise coal gasification (UCG). Part of the arrangement allowed for previous collaborative arrangements regarding ongoing intellectual property rights to UCG and service agreements with the CSIRO to continue.

CSIRO's original shareholding in Carbon Energy arose from the sale in Nov 2007 of its 50% interest in the joint venture company which had been created to develop CSIRO's intellectual property rights to produce and commercialise UCG. As a result of this transaction CSIRO acquired an 18.6% interest in the company on June 30 2008.

Following a sale of the majority of its holding to Pacific Road Resources in 2009 the CSIRO now retains a 3.62% share in the

**company. Carbon Energy's purpose is to produce clean energy and chemical feedstock from Underground Coal Gasification (UCG) syngas, with a further ambition for syngas to become the preferred feedstock for producing low-emission coal power stations, an alternative to oil-based fuel, agribusiness products (fertilizers and explosives), polyolefin products (such as plastics) and allowing for economic carbon capture.**

**In May 2008, Carbon Energy committed to the development of its first UCG trial at Bloodwood Creek positioning itself as a significant innovator within the states energy industry. At the same time, the company signed a MOU with Incitec Pivot to provide exclusive global rights to the use of Carbon Energy's UCG technology for ammonia and ammonia derived product manufacture.**

**In Feb 2012, Carbon Energy achieved a significant milestone to become the first Australian company to export power generated by syngas into a commercial electricity grid from its Bloodwood Creek UCG facility. The company exported electricity to Ergon Energy Corporation Ltd's local electricity grid up to the limit of 1.5MW as permitted under the Environmental Authority.**

**In doing so, CNX became the first Australian company to produce electricity using synthetic gas which was achieved using its proprietary UCG technology "keyseam". The Bloodwood Creek facility accomplished several achievements, with more than 18 months of consistent production of high quality syngas in the range of 6.0 to 7.5 J/m<sup>3</sup>, equal to measures of the highest quality found anywhere in the world.**

**The Bloodwood Creek facility is located away from prime agricultural land and well clear of good quality aquifers, which is important in meeting Carbon Energy's environmental and social responsibility criteria. Through the companies keyseam technology, they have earned a reputation for delivering consistent, high quality product gas which can be used to produce power, fertilisers and pipeline quality gas. Keyseam maximises resource efficiency, extracting up to 20 times more energy from the same resource than coal seam gas (CSG), whilst preserving groundwater quality.**



**Which brings into question why the Qld State Government is stonewalling in handing down an all important decision that would allow Carbon Energy to proceed towards commercial production at Bloodwood Creek.**

**The governments own appointed “Panel of Experts” completed their findings mid 2012, findings which were to intended to provide the basis for a policy decision which would allow Carbon Energy to proceed to production within the parameters of the policy are well behind the date at first indicated by the government and are still to be handed down. It would appear that little or no information has been forthcoming from the government as to when they will announce a policy.**

**This indecision by the Qld State Government could ultimately have serious ramifications for the company and its shareholders as the company continues to wait on a decision it has worked hard over many years to achieve.**

**In May 2012 Carbon Energy announced a Heads of Agreement (HOA) signed with Shanxi Coal to be its exclusive underground gasification (UCG) technology partner for the Shanxi Province. Shanxi Coal is ranked 72<sup>nd</sup> of China's top 500 enterprises and ranked 447 on the Fortune 500.**

***In October 2012 a Definitive Agreement was finalised between the two parties in a significant milestone for Carbon Energy.***

***The Definitive Agreement will deliver to Carbon Energy:***

- 1. A Technology Fee of US\$10 million (US\$7.5 million payable within 30 days of execution of this Definitive Agreement and the balance of US\$2.5 million payable upon achievement of Phase I project milestones);***
- 2. The payment of a commercial schedule of rates for technical and engineering services provided by Carbon Energy; and***
- 3. A royalty stream based on:***
  - 1. a. Phase I - A single panel supplying 0.5 PJ p.a of syngas to the local township of Changzhi. This will generate an additional US\$3***

*million upon achievement of Phase I project milestones.*

*2. b. Phase II - The development of major commercial projects with a projected minimum production rate of 30 PJ p.a of syngas. This phase has the potential to generate over US\$400 million in royalties over a 20 year project life.*

*Work will commence immediately upon receipt of the initial \$7.5 million Technology Fee. The Company will provide technical and engineering services at commercial schedule of rates and both phases will be fully funded by Shanxi Coal under the agreement.*

**Whilst a successful outcome with Shanxi Coal is very highly desirable, the support of state and federal government for Australian intellectual property technology such as that held by Carbon Energy should be of great concern to Australia. This fledgling company has done the hard yards much as UNSW and Pacific Solar did, and it deserves the recognition and support to ensure that it remains a viable concern.**

**Carbon Energy's technology has the potential to bring in considerable ongoing and much needed export dollars over many decades, from a source other than commodities which are far more subject to the vagaries of economic cycles.**

*Carbon Energy achieved Proof of Concept of its technology following 10 years of research with Australia's premier scientific research agency, the Commonwealth Scientific and Industrial Research organisation (CSIRO), 5 years of in-field trials and over \$100 million investment in research.*

**Utilising the companies keyseam technology, it has earned a reputation for delivering consistent, high quality product gas which can be used to produce power, fertilisers and pipeline quality gas. Keyseam maximises resource efficiency, extracting up to 20 times more energy from the same resource than coal seam gas (CSG), whilst preserving groundwater quality.**

**Will this be yet another company forced out of operation in Australia that could easily lose its intellectual property rights to others through lack of government recognition and support?**

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Date	-2 MAY 2013	in
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File No:		
Tracking Folder No:		

Premier Campbell Newman  
 P.O. Box 15185  
 City East  
 Queensland 4002

Dear Premier Newman,

It is my recollection that after the recent 4 Corners expose that you indicated that you would stand up to the mining Companies and hold them to account.

Recently many of my mates, from different places, have been talking to me about Coal Seam Gas. One has been telling me about 'Fugitive emissions' and how methane is 25 times worse than Carbon Dioxide with regard to the Greenhouse effect.

Another was telling me that there are 40,000 methane mines scheduled to be built in Queensland.

Yet Another has told me about the disruption of farmland. He told me that the Darling Downs is getting CSG mines built all over it, the Darling Downs for goodness sake! Which I learned about in school as a boy. One of the most fertile



RECEIVED

- 2 MAY 2013

IN MCU

areas on the planet!

My local Barmaid was telling me about whole towns that have been abandoned.

It seems to me the tide is turning Mr Newman, when 4 independent sources in the space of a fortnight, take me aside to tell me why we shouldn't be doing this

I hope you agree.

s.73 Personal Information





**Sarah Partosh**

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**From:** [REDACTED] s.73 Personal Information [REDACTED].com>  
**Sent:** Thursday, 2 May 2013 8:01 PM  
**To:** The Premier  
**Subject:** Groundbreaking independent health survey of 38 families living with serious health impacts amidst Tara coal seam gasfields by Brisbane GP Dr GERALYN McCARRON

I am a Queensland resident deeply concerned about both short and longterm public health/environmental/groundwater impacts of the coal seam gas industry. I am sending you this comprehensive document for your information, because you are a Member of Parliament charged with exercising a fiduciary duty of care for your constituents. Your feedback will be welcome.

Sincerely,

[REDACTED]

SYMPTOMATOLOGY OF A GASFIELD – AN INDEPENDENT HEALTH SURVEY IN THE TARA RURAL RESIDENTIAL ESTATES AND ENVIRONS April 2013 GERALYN McCARRON

[http://d3n8a8pro7vhmx.cloudfront.net/lockthegate/pages/49/attachments/original/1367333672/2013-04-symptomatology\\_of\\_a\\_gas\\_field\\_GERALYN\\_McCARRON.pdf?1367333672](http://d3n8a8pro7vhmx.cloudfront.net/lockthegate/pages/49/attachments/original/1367333672/2013-04-symptomatology_of_a_gas_field_GERALYN_McCARRON.pdf?1367333672)

Released under RTI - DISC

**Sarah Partosh**

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**From:** [REDACTED] s.73 Personal Information [REDACTED]@hotmail.com>  
**Sent:** Friday, 3 May 2013 1:23 PM  
**To:** The Premier  
**Subject:** RE: CSG industry and Carbon Energy Limited

Thank you for your reply. I do not require a mailed hard copy of correspondence.

The matter is of some urgency as I am withholding information similar to that addressed to the Premier, which is intended as a press release to specific media identities and bodies as well as specific federal government leaders.

If you could provide a response via email providing an indication of what action I might expect in relation to my previous email, which contained detailed attachments, that would be very much appreciated.

With Thanks

---

**From:** The.Premier@premiers.qld.gov.au  
**To:** [REDACTED]@hotmail.com  
**Date:** Wed, 1 May 2013 16:31:23 +1000  
**Subject:** RE: CSG industry and Carbon Energy Limited

Thank you for your email to the Honourable Campbell Newman MP, Premier of Queensland. We confirm receipt of your message. If you would like to provide an opportunity for the Premier to respond, please email back with your postal address and your correspondence will be actioned as appropriate. We appreciate the time you have taken to contact our office.

Ministerial Officer  
Office of the Premier

**From:** [REDACTED] [mailto:[REDACTED]@hotmail.com]  
**Sent:** Wednesday, 1 May 2013 4:02 PM  
**To:** Premiers Master  
**Cc:** Nrm@ministerial.qld.gov.au  
**Subject:** CSG industry and Carbon Energy Limited

For the urgent attention of the Premier of Queensland, The Hon Campbell Newman.

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subsequently confirmed in writing. The opinions expressed in this email are those of the author and do not necessarily represent the views of the State of Queensland. This email is confidential and may be subject to a claim of legal privilege.

If you have received this email in error, please notify the author and delete this message immediately.

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**Sarah Partosh**

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**From:** The Premier  
**Sent:** Saturday, 4 May 2013 7:38 PM  
**To:** The Premier  
**Subject:** Access for coal seam gas mining

**Importance:** High

Subject: Access for coal seam gas mining  
Title: mr  
First Name: [REDACTED]  
Family Name: [REDACTED]  
Email: [REDACTED]@optusnet.com.au  
Phone:

-----  
Address: [REDACTED]  
Town: [REDACTED]  
State: [REDACTED]  
Postcode: [REDACTED]  
Email: [REDACTED]@optusnet.com.au  
-----

Comment:

Dear Campbell,

I'm please to hear that Tony Abbot has said (during an interview on radio station 2GB) that coal seam gas miner shouldn't be going onto land where the land owners don't want them. I'm looking forward to seeing this put into legislation after the next federal election and I'm asking you to give Mr Abbott every cooperation when he achieves this.

Thanks.

Released under RTI - DPC



PO Box 102, Toowoomba, Qld, 4350

Phone +61 7 4688 1327

Email enquiries@gfca.org.au

Web www.gfca.org.au

13 May 2013

The Honourable Campbell Newman MP  
Premier of Queensland  
PO Box 15185  
CITY EAST QLD 4002

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Dear Premier Newman *Campbell*

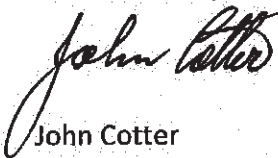
Thank you for your letter, received in our office on 8 May 2013, regarding issues raised by Mr s.73 Personal Information about the report *Assessment of the feasibility of coal seam gas (CSG) water use in the Central Condamine Alluvium (CCA)*.

The Commission will investigate this matter further in conjunction with the relevant departments, and respond directly to [redacted] with our findings, as per your request.

I will keep you informed of the progress of [redacted]'s concerns, and in the meantime, please do not hesitate to contact me or [redacted] for any clarification.

Thank you for bringing this matter to the attention of the Commission.

Yours faithfully



John Cotter  
Chairman  
GasFields Commission Queensland

*Can  
I would like to thank you  
on the Commission about  
CSG issues when convenient  
Kind regards  
John*

**Sarah Partosh**

---

**From:** [REDACTED]@hotmail.com>  
**Sent:** Thursday, 16 May 2013 5:35 PM  
**To:** The Premier  
**Subject:** FW: Food & water security

As you requested my full name and address in order to reply to my email please find it bellow.

[REDACTED]

---

**From:** [REDACTED]@hotmail.com  
**To:** thepremier@premiers.qld.gov.au  
**Subject:** FW: Food & water security  
**Date:** Thu, 16 May 2013 09:39:26 +1000

---

Premier Newman,

As I write this email I am becoming increasingly concerned about the future security of food and water in Australia. As you will be well aware, we live in a country that suffers at times from extreme drought leaving our farmers struggling in the extreme.

At the moment I understand a future plan for Queensland is being put together (not before time) and this appears to be the perfect time to get things right. One would hope the 'vision' for QLD doesn't include the continued danger to all Australians by allowing the Coal Seam Gas fracturing process to continue. The risk of further polluting The great Artesian Basin and other aquifers is to great when looked at from the point of food and water security in the future. The lines, "Can't drink gas, can't eat coal" come to mind.

I would like to hear your opinion on CSG mining and in particular the 'fracturing' process used. The other thing I would like to know your thoughts on is, "Do you think it's a fair thing that QLD farmers don't have the right to refuse mining companies entry to their farms?"

Thanks in advance, for taking the time to respond.

Sincerely,

[REDACTED]

**Sarah Partosh**

---

**From:** Bernadette Zerba  
**Sent:** Wednesday, 22 May 2013 1:20 PM  
**To:** Nadia Cecil  
**Cc:** Jan Hatton  
**Subject:** FW: Urgent - Letter to Premier - CSG Harmonisation  
**Attachments:** FinalFrameworkLtrToPrem\_Att2.pdf; Letter to PRemier signed.pdf

Please note this response will need to be urgently prepared to meet the SCER meeting timelines. Could you please trim this item and allocate to Robbie Meddick in ERP please.

---

**From:** Reside, Martin [mailto:Martin.Reside@dnrm.qld.gov.au]  
**Sent:** Wednesday, 22 May 2013 12:58 PM  
**To:** Bernadette Zerba  
**Cc:** Robbie Meddick  
**Subject:** Urgent - Letter to Premier - CSG Harmonisation

Hi Bernadette

Please find attached, a scan of a letter to the Premier, seeking his urgent approval for Minister Cripps to communicate the Qld Govt's position and endorse the final Nationalised Harmonised Regulatory Framework for Coal Seam Gas to SCER next week.

In order to meet SCER, it would be appreciated if we could get the Premier's response by next Tuesday.

Cheers

m

**Martin Reside**  
A/Director & CLLO  
Ministerial Services and CLLO

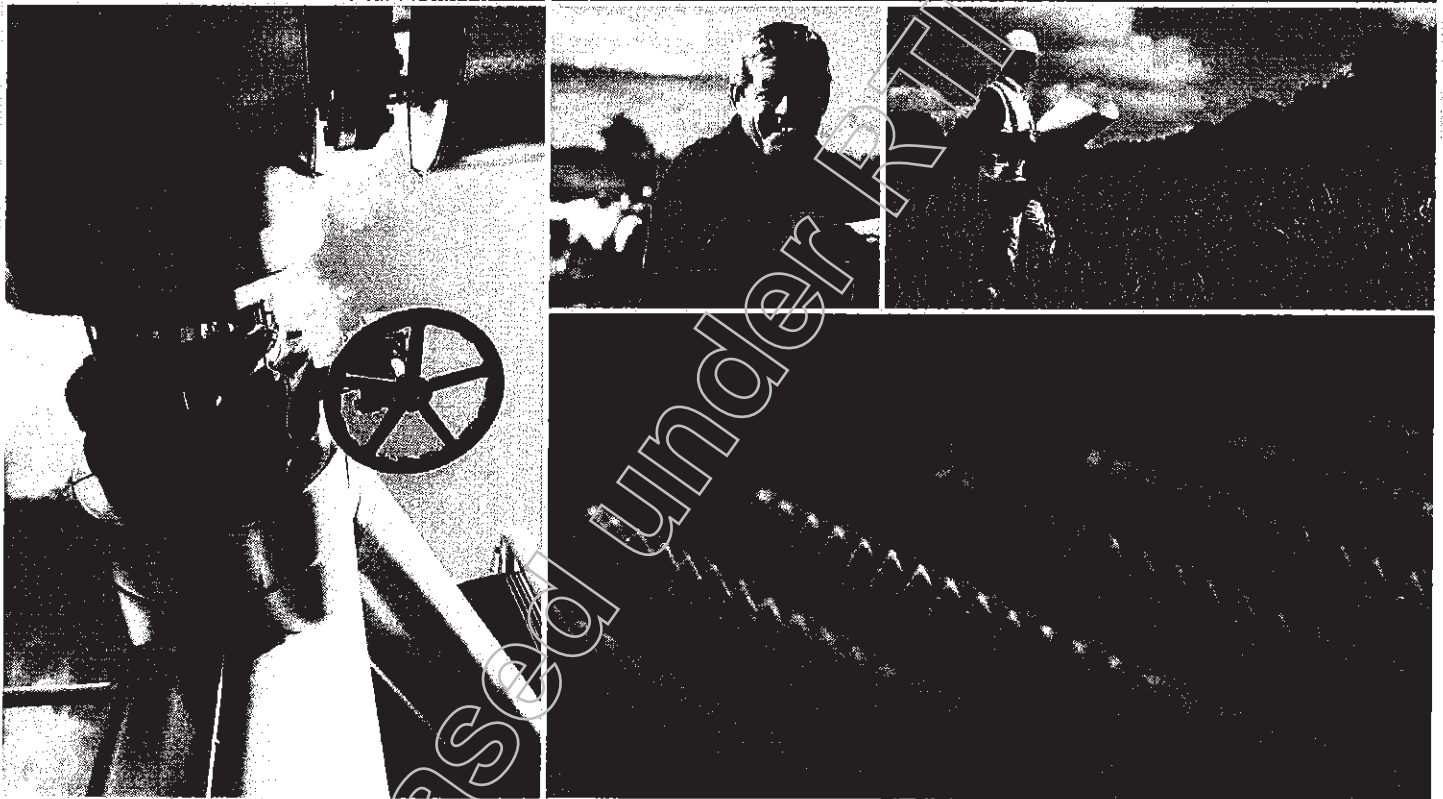
**Department of Natural Resources and Mines**

**T** 07 3199 8206 (short dial 76206 - DNRM only) - **NEW PHONE NUMBER**  
**M** [REDACTED]  
**E** [martin.reside@dnrm.qld.gov.au](mailto:martin.reside@dnrm.qld.gov.au)

Level 17, 61 Mary Street Brisbane  
PO Box 15216, City East Queensland 4002  
13 QGOV (13 74 68)

# The Draft National Harmonised Regulatory Framework

Coal Seam Gas



 **SCER**  
Standing Council on  
Energy and Resources



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PREFACE – Insert words from SCER Communique

Released under RTI - DPC

## EXECUTIVE SUMMARY

### Towards sustainability and co-existence

Coal seam gas (CSG) is playing an increasingly important role in meeting Australia's overall energy requirements, particularly in Queensland and New South Wales. Over the past decade CSG has grown from a relatively insignificant energy source to supplying 35 per cent of the eastern Australian domestic gas market. The next decade will see the industry expand further with the commencement of CSG-based liquefied natural gas (LNG) exports out of Queensland from 2014-15.

However, Australia cannot reap the benefits from CSG development if the industry's social licence and community confidence are not established and maintained.

Development of the CSG has at times divided local communities and brought challenges and change to rural areas. The future pathway for CSG development will be determined by the ability of communities, farmers, other land users and industry to not only co-exist and manage potential environmental impacts and water resources but also grasp opportunities in many regional communities for jobs, businesses and local development.

The successful development of the CSG industry depends on Australian governments, industry and communities working together to achieve balance in environmental, social and economic outcomes. In particular, governments must provide the policy and regulatory settings and enforceable conditions that will be effective in managing CSG development and efficient in maximising the benefits to the community while protecting the environment and human health. Importantly, governments also have a role providing information to the general public, the CSG industry and the media to inform debate and discussion on resource development.

These regulatory and legislative settings should be underpinned by the principle of co-existence. This is where a shared commitment exists between the resources industry, other land users, local communities and governments to multiple, merit-based and sequential land use that provides certainty for industry and improved community confidence in land use decision-making.

The National Harmonised Regulatory Framework for CSG responds to these imperatives and provides guidance on what constitutes leading practice in the core areas of well integrity, water management and monitoring, hydraulic fracturing and chemical use. While its primary purpose is to be a guidance document for governments, the Framework will benefit the community and industry by providing increased levels of consistency, certainty and transparency in the management of CSG development in Australia.

## Applying leading practice in CSG regulation

The application of the leading practices identified in this Framework demonstrates a shared commitment among governments to apply a consistent and leading practice approach to the management of CSG in each jurisdiction.

In applying leading practices, governments should implement streamlined, transparent and consistent processes to ensure that CSG activities are managed in accordance with the level of risk associated with those activities. Leading practices includes effective planning mechanisms where governments with industry, recognise community expectations and undertake proactive engagement, informed by facts and conducted in good faith.

The Framework itself is not in itself a risk assessment of the CSG industry but has developed a set of leading practices which are framed in a way that is compatible with a risk based approach to regulation. Some leading practices are overarching and are aimed at improving the frameworks and structures that apply to assessing impacts from and regulating CSG development, for example, ensuring comprehensive environmental impact assessment is a part of the approvals process. Other leading practices prescribe more specific measures that are considered appropriate to be applied to CSG development operations, for example, the requirement for independent supervision of well construction.

In general terms, CSG development may present a similar spectrum of risks across numerous locations; however some risks will also be specific in relation to the works proposed or the geology, hydrogeology and environmental values peculiar to a site. It is necessary to maintain leading practice approaches that are risk-based and capable of adaption to address these site-specific risks.

Successful implementation of the Framework will also depend on the community's readiness and openness to engage with governments and industry. The application of the leading practices identified in this Framework builds community confidence in the operation of the CSG industry. It also delivers a balanced message about the challenges associated with CSG development and how these are being addressed to deliver the greatest net benefit to Australia.

A total of 18 leading practices have been identified to mitigate the potential impacts associated with CSG development and build a robust national regulatory regime for the CSG industry (Table ES 1). Many of these practices are capable of addressing multiple impacts. Four of the leading practices are overarching strategies that are equally relevant to all four core areas of CSG development addressed under the Framework. The remainder apply more specifically to each of the core areas of well integrity, water management and monitoring, hydraulic fracturing and chemical use.

Table ES.1: Summary of leading practices for CSG operations

Leading practice		Well integrity	Water management	Hydraulic fracturing	Chemical use
1	Undertake a comprehensive environmental impact assessment, including rigorous chemical, health and safety and water risk assessments	✓	✓	✓	✓
2	Develop and implement comprehensive environmental management plans or strategies which demonstrate that environmental impacts and risks will be as low as reasonably practicable	✓	✓	✓	✓
3	Apply a hierarchy of risk control measures to all aspects of the CSG project	✓	✓	✓	✓
4	Verify key system elements, including well design, water management and hydraulic fracturing processes, by a suitably qualified person	✓	✓	✓	✓
5	Apply strong governance, robust safety practices and high design, construction, operation, maintenance and decommissioning standards for well development	✓	✓	✓	✓
6	Require independent supervision of well construction	✓			
7	Ensure the provision and installation of blowout preventers informed by a risk assessment	✓			
8	Use baseline and ongoing monitoring for all vulnerable water resources		✓		
9	Manage cumulative impacts on water through regional-scale assessments		✓		
10	Ensure co-produced water volumes are accounted for and managed		✓		
11	Maximise the recycling of produced water for beneficial use, including managed aquifer recharge and virtual reinjection		✓		
12	Require a geological assessment as part of well development and hydraulic fracturing planning processes	✓	✓	✓	
13	Require process monitoring and quality control during hydraulic fracturing activity			✓	✓
14	Handle, manage, store and transport chemicals in accordance with Australian legislation, codes and standards			✓	✓
15	Minimise chemical use and use environmentally benign alternatives			✓	✓
16	Minimise the time between cessation of hydraulic fracturing and flow back, and maximise the rate of recovery of fracturing fluids			✓	✓
17	Increase transparency in chemical assessment processes and require full disclosure of chemicals used in CSG activities by the operator			✓	✓
18	Undertake assessments of the combined effects of chemical mixtures, in line with Australian legislation and internationally accepted testing methodologies			✓	✓

Key: ✓ Leading practice primarily applies to this core area and is discussed within its respective chapter  
 ✓ Leading practice is also relevant to this core area



The Framework identifies leading practices that can be adopted by regulators to provide a harmonised approach to managing CSG activities and give effect to a nationally consistent CSG regulatory regime.

The Framework does not require developing new CSG-specific legislation in all jurisdictions, as many jurisdictions already have in place legislation and regulation appropriate to the industry. Common elements for these regulatory systems include legislation for the protection of human health, conservation of the environment and water resources, protection of property rights and multiple land use. However, there may be areas where existing legislation or regulation does require change or adaption to be consistent with the leading practices identified in the Framework.

While the focus of the Framework is on a harmonised regulatory approach for CSG and a response to specific community concerns; some of the approaches to leading practice advocated in the Framework may have applicability to other unconventional oil and gas activities like shale and tight gas.

As such, the Framework identifies that leading practice regulation is not a static concept. Effective inter-governmental cooperation and proactive international partnerships will continue its development. Jurisdictions will report back to the Standing Council on Energy and Resources (SCER) on progress in implementing the Framework and on areas where state or territory legislation remains inconsistent with it. SCER also provides a forum for discussion and information exchange between governments on developing leading practice regulation for the CSG and other sectors.

The Framework forms the foundation for continued improvement in leading practice built on improved science and data. It also increases public understanding of CSG issues, the role of governments, industry and communities, and the science and economics which underpin the development of the sector.

## CHAPTER 1: TOWARDS SUSTAINABILITY AND CO-EXISTENCE

### KEY POINTS

- ❖ CSG is making a significant contribution to eastern Australia's domestic gas supply security.
- ❖ Sustainable development in the context of CSG projects means that they should be environmentally sound, socially responsible, technically appropriate and financially profitable.
- ❖ More generally, sustainable development in the resources sector is underpinned by the guiding principles of the Multiple Land Use Framework (MLUF). The adoption of these principles demonstrates a commitment to maximising the environmental, social and economic value of land and water resources.
- ❖ The development of the CSG industry requires a shared commitment between all land users including farmers, local communities, industry and governments to multiple and sequential land use.
- ❖ Governments at all levels have a key role in providing scientifically-robust information to better inform public discussion on resource development including CSG.

### KEY FINDING

- 1.1 In their role as regulators of CSG activities, Australian governments should further improve their individual and combined efforts in communicating effectively with key stakeholders, ensuring access to factual and timely information and assisting communities to participate in decision-making.
- 1.2 The sustainable development of Australia's CSG industry relies on governments, industry and communities working together to deliver the best possible balance of social, environmental and economic outcomes for Australia.

## CSG in Australia

Australia has significant exploitable reserves of CSG, primarily located in the coal basins in Queensland and New South Wales but with production potential in most states and territories. Commercial production of CSG commenced in Australia in 1996 with slow production growth for its first decade.

From 2005, CSG production in Queensland commenced a stage of rapid growth, encouraged by the Queensland Government's policy of mandating the use of natural gas in 13 per cent of Queensland electrical generation capacity. In 2005, CSG production in Queensland was around 40 petajoules (PJ) per annum with just under 10 PJ produced in NSW.

Today, CSG production remains centred in Queensland with 252 PJ produced during 2012 with NSW production falling to just over 6 PJ. CSG production now contributes more than 35 per cent of eastern Australian domestic gas supplies (EnergyQuest 2013) and is an important component of an affordable and secure energy supply.

This step change in the CSG production is demonstrated by other measures of industry activity. By the end of 2012, 1,439 exploration and appraisal wells and 2,789 production wells had been drilled. Companies have signed 3,780 access agreements to allow the drilling of CSG wells and the construction of supporting infrastructure such as pipelines on private land. Over 27,500 workers and contractors were employed by the industry, nearly all of them in Queensland (APPEA 2013). There are three CSG-based liquefied natural gas (LNG) processing facilities under construction in Queensland which will commence supplying international gas market from 2014-15 and increase demand for CSG further.

## Environmental, social and economic aspects

The growth in the CSG industry over the past decade and likely future growth poses significant challenges for governments, communities and the industry. As with the development of other extractive resource industries, the sustainable development of the CSG sector requires balanced consideration of the environmental, social and economic aspects of CSG activities.

CSG activities will affect the environments in which they occur. Potential environmental issues such as groundwater depletion, produced water management, surface disruption from activities associated with the drilling of wells and the construction of pipelines, and chemical use associated with well drilling and hydraulic fracturing must be managed to minimise environmental impacts. Industry should ensure that the planning and operational stages of CSG exploration and production are consistent with leading practices and regulatory requirements. Government should ensure that industry regulation also reflects environmental leading practice and is monitored and enforced.

A key social challenge in CSG development is ensuring that future generations have the same or greater access to social and environmental resources as the current generation. The CSG industry is contributing to sustainability through the development of jobs in local communities and improved social infrastructure and facilities such as affordable housing in communities, improved health service, assistance to social and sporting clubs etc. - ensuring that it leaves a positive legacy for future generations. However, unless a community is engaged with and supportive of CSG operations, the industry will not be able to claim or maintain its social licence and continued operations will be unsustainable.

From an economic perspective, a CSG project needs to operate profitably in the longer-term in order to be sustainable. Companies supplying natural gas to the Australian domestic market and in the future to international customers, have numerous contractual and financial obligations which require certainty of future operations. However, the balance sheet for the industry needs to ensure equitable benefits for all stakeholders including local communities, local businesses, shareholders and government through its contribution to job creation, improved social infrastructure and taxation and royalties.

## The participants

The community, industry and governments are the key participants in the development of CSG. Open and honest dialogue and constructive negotiation are critical to developing productive relationships between participants.

In the context of CSG development, the community may be defined as both the geographic community in the operation's area of interest, and as a network of people who are geographically dispersed but are linked together by a shared set of interests or experiences (DITR, 2006). It is important to acknowledge that a community is not a homogeneous entity and that members of a community are likely to hold diverse opinions about a CSG project, industry activities or the petroleum industry in general. Community engagement should include upfront and honest conversations and negotiations - providing information on activities and operations in the short and long term and the impacts that those activities may have on local communities. Communities need to be given the opportunity to in-turn inform companies on how the community wishes activities to be undertaken or on how operations can be managed to reduce what the community may see as negative impacts.

There are a range of companies involved in the sector - from small exploration companies seeking to identify potential resources to large Australian and multinational oil and gas companies with interests in multiple developments in Australia and internationally. There are also a wide range of sub-contractors and service providers employed within the CSG sector ranging from drilling contractors, pipeline construction companies, water treatment specialists, camp construction companies and a raft of consultants and specialists providing advice on environmental management, community engagement, subsurface monitoring etc. It is important that these contractors and consultants understand that they operate under the same regulations and have the same community obligations as title holders.

Australian governments are focused on achieving a balance between developing a world-class CSG industry, protecting the environment, water resources and human health while delivering opportunities and benefits to the Australian community. It is the responsibility of governments to understand and address both the risks and community perceptions involved in CSG development and adopt positions that address and respond equally to these risks and perceptions. Governments should aim to provide policies and regulations that encourage the growth of the industry within a regime of relevant, enforced conditions and legislation to protect the environment, human health and facilitate social development and sustainability.

The investment community can also play a significant role in managing environmental, social and governance risks associated with CSG development. Investor groups and companies include banks and financial institutions, shareholders and gas customers (often with direct investment into a project) and superannuation fund managers. There is also a growing area of investment funding tied to the term "ethical investment" seeking to influence investment patterns in pursuit of claimed social or environmental benefits.



## Delivering beneficial outcomes for all participants

In order to deliver beneficial outcomes for all participants, there needs to be a shared commitment between the resources industry, other land users and governments to co-existence. Co-existence is founded on the principles of multiple and sequential land use and merit based land access which is informed by reasoned and fact-based public discussion on resource development. Co-existence should not restrict or favour one form of land use without considering the implications for other potential users and the broader benefits that accrue to the wider Australian community.

A consensus on land use and resource development provides for increased community confidence in land use decision-making by government and the certainty required by industry to invest in resource development including CSG.

The principles of co-existence are contained in the national Multiple Land Use Framework which was endorsed for development by the Standing Council on Energy and Resources in 2011. When finalised, the Multiple Land Use Framework will promote the use of adaptive capabilities (leadership, partnerships, planning, engagement, education and applied learning) and technical solutions (assessment and approvals processes underpinned by sound scientific and engineering guidance and practice). The guiding principles are outlined below:

**Co-existence:** The rights of all land users and the potential of all regulated land uses should be acknowledged and respected, while ensuring that regulated land is not restricted to a sole use without considering the implications or consequences for other potential land uses, and the broader benefits to all Australians.

**Best use of resources:** Governments should seek to maximise the economic and social benefits of regulated land use for all Australians and future generations through encouraging the multiple use of regulated land, while respecting and protecting environmental, cultural and heritage values.

**Coordinated preparation informed by effective planning:** Governments should coordinate planning (involving government and industry) to recognise the community's expectations and capacity to adapt to land use change. Effective regional-scale planning establishes clear spatial parameters for multiple and sequential land use over time, providing community and investor certainty while retaining the flexibility to adapt to change.

**Participation of communities and landholders in decision-making on land use change:** Participation of communities and landholders should be appropriate and timely. Genuine participation involves communities having the capacity to shape how land use change occurs. Directly affected landholders should be informed about and consulted on multiple land use options, the potential for co-existence, and environmental values to promote a greater understanding of the potential for mutual benefits and to resolve concerns.

**Engagement and education are paramount to informed debate:** Open and constructive debate and analysis of different multiple land use options should be informed by facts. Stakeholders should be genuine in their willingness to listen and appreciate the views, concerns and needs of other land use stakeholders.

**Decision-making:** Evidence-based decision-making on land use should be informed by risk-based approaches that make transparent the consequences of different land uses. Accountabilities regarding decision-making should be clear and enduring.

**Efficient processes:** Governments should work towards streamlined, transparent and consistent legislated approvals processes where duplication is minimised and in which land access for multiple use is handled in accordance with risk. This includes ensuring that processes to define and resolve land issues (for example water, heritage or cultural values) are based on the best available evidence and sustainable development principles.

**Access to relevant information:** Relevant information about land and resource capability and values, current and proposed multiple and sequential land use, and land management performance should be accessible to all stakeholders.

### **Adaptive management and risk**

In addition to the goal of co-existence for communities, land users and governments, there is much discussion about the best approach to regulating the development of the CSG industry. This debate is often couched in terms of taking a precautionary principle or adaptive management approach.

Ecologically Sustainable Development (ESD) is widely used in state and federal legislation that regulates activities such as mining and environmental impacts. ESD aims to balance the environmental, economic and social costs and benefits of a proposed activity. However, the appropriate balance can be difficult to achieve when there is uncertainty about the costs and benefits of particular developments.

The precautionary principle complements the objective of ESD in situations where there is significant scientific uncertainty about potentially serious impacts. The principle is used in numerous international treaties and declarations, as well as Australian federal and state laws. According to the United Nations Rio Declaration:

*If there is a threat of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing cost effective measures to prevent environmental degradation*

It suggests that regulators should take cost effective action to remove the potential for negative impacts, even where scientific evidence is not conclusive. However, the absence of scientific certainty is not a reason to prevent all activity.

Risk management is a necessary addition to the precautionary principle. The application of the precautionary principle should be a proportionate and reasonable response to:

- the level of potential impact (e.g. the principle is most applicable to potential catastrophic or irreversible harm);
- the likelihood of a potential impact occurring (is the risk plausible and reasonably likely to occur); and
- the costs of regulatory action, and the opportunity cost of not proceeding.

While the regulatory response should be proportionate to the likelihood of the risk, where there is limited evidence to assess the likelihood or otherwise of a particular risk, adaptive management can be a useful approach.

Adaptive management involves baseline data collection and ongoing monitoring, so that as soon as any impact is detected appropriate action can be taken. Adaptive management can be an appropriate risk management tool in situations where there is a community concern

about a potential risk, with limited likelihood and/or scale of impact, and it is practical to undertake ongoing monitoring and to affect appropriate action.

The precautionary principle in conjunction with adaptive management is part of a hierarchy of risk control measures that apply to all aspects of the CSG development.

### **Governments' role to ensure a balanced outcome**

Governments play a crucial role as the regulators of the CSG industry - regulation that is effective in addressing CSG development issues and efficient in maximising benefits to the community at a reasonable cost. Determining whether regulation meets the dual goals of effectiveness and efficiency requires a structured approach to policy development that systematically evaluates costs and benefits. A regulatory regime for managing CSG development needs to be robust, flexible and responsive to facilitate the best outcomes, not only for industry and the Australian economy, but also for communities and the natural environment. Further information on Australia's regulatory regime for CSG is in Appendix 2.

Governments also play a significant role in providing fact-based and scientific information to assist the general public, the CSG sector and the media in discussing the development of the sector. A sound understanding and appreciation of the importance of co-existence in land use, the communities' expectations of resource companies in working with land holders and local community leaders and government's regulatory processes in protecting local community interests and environmental values, all play important roles in building a compact on a social licence for the CSG industry.

### **The Framework**

Applied in conjunction with existing regulatory mechanisms, the Framework provides a consistent approach to managing CSG development. The Framework provides guidance to regulators on what constitutes leading practice in the core areas of well integrity, water management and monitoring, hydraulic fracturing and chemical use. The application of these practices will lead to evidence-based decision-making by government in regulating the CSG industry.

The Framework is set out in detail over the next five chapters. Key findings are highlighted in the summary box at the beginning of each chapter. The application of the leading practices identified within this Framework will assist the development of a regulatory environment that provides certainty, consistency and transparency for regulators, industry and communities. This approach will address concerns and minimise potential impacts of CSG development to deliver balanced outcomes for the benefit of Australia as a whole.

## CHAPTER 2: APPLYING LEADING PRACTICES

### KEY POINTS

- ❖ The application of the leading practices identified in this Framework demonstrates a shared commitment among governments to take a consistent and transparent approach to the regulation of CSG in each jurisdiction.
- ❖ The successful implementation of leading practices in regulatory regimes requires industry to embrace social and environmental responsibility.
- ❖ A national harmonised regulatory framework approach supported by industry practice and innovation will build public confidence in the operation of the CSG industry and deliver a balanced message about the opportunities and challenges posed by CSG activities.
- ❖ 18 leading practices have been identified to address and mitigate the potential impacts associated with CSG development and build a robust national regulatory regime for CSG.
- ❖ Four of the leading practices are overarching strategies equally relevant to the four aspects of CSG development addressed under the Framework: well integrity, water management and monitoring, hydraulic fracturing and chemical use.

### KEY FINDINGS

- 2.1 Governments have existing regulatory mechanisms for the management of CSG development in Australia; however a nationally consistent application of leading practices for the regulation of CSG activities is currently not in place.
- 2.2 A strong, consistent and harmonised leading practice regulatory regime will assist in the sustainable development of Australia's CSG industry. This relies on governments, industry and communities working together to deliver a balance of environmental, social and economic outcomes for Australia.



## Application of leading practice

The identification of leading practices provides a robust basis for the development and refinement of legislation, regulations, policies and practices. Importantly it provides a consistent approach across jurisdictions to managing CSG development and ensures a level of certainty for stakeholders and the industry.

In applying the leading practices, governments should implement streamlined, transparent and consistent processes in which CSG activities are regulated in accordance with the level of risk. Leading practice systems assist in identifying a full range of risks by engaging equally with all stakeholders and considering a diversity of views.

The successful implementation of leading practices regulatory regimes also depends on the willingness of industry to embrace social and environmental responsibility on community readiness and openness to engage with governments and industry.

Ultimately, the application of the leading practices by governments through a national harmonised regulatory framework supported by industry practices will build community confidence in the operation of the CSG industry and deliver a balanced message about the available opportunities and potential risks of CSG development.

The following eighteen identified leading practices address regulatory issues associated with well integrity, water management and monitoring, hydraulic fracturing and chemical use.

Released under PIA/DPO

**Table 2.1: Summary of leading practices for CSG operations**

Leading practice		Water	Energy	Environment	Health and Safety
1	Undertake a comprehensive environmental impact assessment, including rigorous chemical, health and safety and water risk assessments	✓	✓	✓	✓
2	Develop and implement comprehensive environmental management plans or strategies which demonstrate that environmental impacts and risks will be as low as reasonably practicable	✓	✓	✓	✓
3	Apply a hierarchy of risk control measures to all aspects of the CSG project	✓	✓	✓	✓
4	Verify key system elements, including well design, water management and hydraulic fracturing processes, by a suitably qualified person	✓	✓	✓	✓
5	Apply strong governance, robust safety practices and high standards in design, construction, operation, maintenance and decommissioning for CSG wells	✓	✓	✓	✓
6	Require independent supervision of well construction	✓			
7	Ensure the provision and installation of blowout preventers informed by a risk assessment	✓			
8	Use baseline and ongoing monitoring for all vulnerable water resources		✓		
9	Manage cumulative impacts on water through regional-scale assessments		✓		
10	Ensure co-produced water volumes are accounted for and managed		✓		
11	Maximise the recycling of co-produced water for beneficial use, including managed aquifer recharge and virtual reinjection		✓		
12	Require a geological assessment as part of well development and hydraulic fracturing planning processes	✓	✓	✓	
13	Require process monitoring and quality control during hydraulic fracturing activity			✓	✓
14	Handle, manage, store and transport chemicals in accordance with Australian legislation, codes and standards			✓	✓
15	Minimise chemical use and use environmentally benign alternatives			✓	✓
16	Minimise the time between cessation of hydraulic fracturing and flow back, and maximise the rate of recovery of fracturing fluids			✓	✓
17	Increase transparency in chemical assessment processes and require full disclosure of chemicals used in CSG activities by the operator			✓	✓
18	Undertake assessments of the combined effects of chemical mixtures, in line with Australian legislation and internationally accepted testing methodologies			✓	✓

Key: ✓ Leading practice primarily applies to this core area and is discussed within its respective chapter  
 ✓ Leading practice is also relevant to this core area

As indicated in Table 2.1 the first four leading practices apply equally to each of the four core areas of well integrity, water management and monitoring, hydraulic fracturing and chemical use. These four practices are outlined below.

### Overarching leading practices

Risk cannot be completely eliminated from any system or project. However risk can be managed. In order to manage risk, the context in which it occurs needs to be understood - including not only the direct project development but also the wider environmental and social contexts in which the development is occurring. Once risk is identified within these various contexts, an assessment and prioritisation of risks can be made on the basis of the severity of potential impacts and the likelihood of a particular event occurring.

A risk based approach to regulation is not the same as self-regulation. The emphasis of risk based approaches is to ensure that a one size fits all approach is not applied to operations that carry different types or levels of risk. Risk based regulation involves the preparation of operational plans for regulatory approval. An operator cannot commence operations until it is demonstrated that operational plans comprehensively address the specific risks unique to the particular site, geology, hydrogeology. These operational plans form the blueprint for regulating the operation and must be adhered to.

A widely used concept within many sectors is to minimise risk to as low as reasonably practicable (ALARP). This concept recognises both that risk remains inherent but importantly that risk can be managed effectively. A risk management strategy or plan sets out the prioritised risks and the recommended mitigation strategies to be followed to reduce risk to achieve ALARP. It also provides a documentary risk record for industry and regulators to modify and adapt projects as the understanding of associated risk changes.

This process is inherent in the environmental approvals for CSG projects and underpins the first four leading practices.

#### **1: Undertake a comprehensive environmental impact assessment, including rigorous chemical, health and safety and water risk assessments**

A comprehensive environmental impact assessment is the process of identifying, evaluating and planning to mitigate the environmental, social, and other relevant impacts of development proposals prior to taking decisions on proceeding with a project.

A rigorous impact assessment will:

- ensure environmental and human health considerations are explicitly addressed and incorporated into the development decision-making process;
- anticipate and avoid, minimise or offset the adverse environmental, social (including human health) and other relevant effects of development proposals;
- protect the environmental values of natural systems and the ecological processes which maintain them; and
- promote development that is sustainable and optimises resource use (IIIA 1999).

Australia's existing development planning framework requires environmental impact approvals from the relevant state or territory and under Commonwealth legislation if they impact on matters of national environmental significance. In addition, CSG projects will require specific consideration under the *Environment Protection and Biodiversity Conservation Act 1999* for significant potential impacts on water resources.

Note the above highlight is contingent on passage of the EPBC related Bill before Parliament – could be passed prior to SCER in 30 May.

The requirements for approval typically include an assessment of the potential environmental impacts resulting from the project, usually in the form of an environmental assessment (EA), environmental impact statement (EIS) or environmental impact report (EIR), depending on the jurisdiction. A comprehensive EA/EIS process will ideally establish an environmental baseline as a reference point for impact prediction and evaluation and analyse interactions between the environment, the project and the community.

For CSG operations, the regulator should ensure that the environmental impact assessment process includes consideration of:

- drilling operations which includes water resource protection, noise management and dust minimisation;
- potential impacts of CSG operations on the hydrogeological environment (ideally through a numerical groundwater flow model developed with consideration of the Australian Groundwater Modelling Guidelines (NWC 2012b) - subject to peer review and independent audit) and provide for ongoing monitoring to determine any changes that may impact existing users and the environment;
- the requirements for ongoing monitoring, evaluation, and reporting of hydraulic fracturing activities including the use of chemicals (storage, handling, processing, transport, and disposal) with respect to potential human health or environmental impacts; and
- the implementation of impact mitigation controls and compliance with relevant legislation, standards, and codes of practice as part of the operation.

The regulator must evaluate the impact assessment and apply suitable risk-mitigation conditions to its approval. The regulator must ensure that operators comply with the licence conditions and report results transparently. This will require the regulator to have the skills and capacity to deliver these responsibilities.

**2: Develop and implement comprehensive environmental management plans or strategies which demonstrate that environmental impacts and risks will be as low as reasonably practicable (ALARP)**

States and territories have a range of processes in place to ensure that environmental risks or impacts are managed to ALARP. These may be either through:

- an application process where a CSG project proponent identifies the actions it will undertake to ensure that environmental harm is avoided, minimised or mitigated; or
- an environmental management plan or strategy which translates the options identified in an EA/EIS process into specific environmental protection commitments and obligations.

In either case, if an environmental management strategy or plan is to be effective and accepted by regulators, it will ensure:

- the application of best practice environmental management to a project;
- the appropriate management of environmental risks associated with the project (e.g. NSW DIPNR 2004a); compliance with environmental legislation; and, where appropriate; either



- acceptance by the regulator of a project proponent's ability to comply with the requirements associated with conducting an environmentally relevant activity; or
- the implementation of a project's approved EA/EIS, including its conditions of approval or consents.

An environmental management plan or strategy ensures that the potential environmental impacts of each CSG activity are understood and strategies are put in place to manage or mitigate those risks. It becomes a formal part of the operational procedures for a CSG project.

An environmental management plan or strategy should contain the following:

- a description of the environment – including any relevant sensitivities and cultural, historical, social, biological and economic aspects that may be affected by the operation;
- a description of environmental effects and risks – that identifies and evaluates environmental risks and assesses the risks of potential effects on the environment resulting from reasonably possible activities of the operation or incidents that are not normal activities of the operation;
- environmental performance objectives and standards – including measurement methods for determining whether the objectives and standards have been met; and
- an implementation strategy for the plan.

### **3: Apply a hierarchy of risk control measures to all aspects of the CSG project**

A hierarchy of risk control measures is a sequence of prioritised options that ensures that risks are addressed and mitigation strategies implemented. The most effective mitigation strategies and controls are applied first, with less effective options considered thereafter. In some instances, the best mitigation strategy may involve more than one risk control measure. For CSG development, a risk assessment should include all aspects of water management and monitoring, well development, hydraulic fracturing, chemical use and waste management and include a hierarchy of risk strategies to implement appropriate risk control measures. Consideration of unexpected or extreme events, such as extreme weather, accidents etc. should be included in the design of hazard management strategies as part of a comprehensive risk management strategy for a project.

In relation to well integrity, the plan should:

- state how the drilling process is to be managed, controlled and monitored;
- contain leading practice for management of drilling fluids, cuttings, fines, diesel and other potentially harmful substances on site. All storage containment for drilling fluid should be appropriately constructed to prevent run off to surface water features or infiltration to groundwater. Drill cuttings and fluids should be disposed of in an approved location;
- include arrangements for the transport and storage of chemicals used in the drilling process and disposal of solid waste (cuttings and fines) by either remediation on site or transportation off site to an appropriate disposal site; and
- Demonstrate that closure/decommissioning of wells will be undertaken in accordance with mandatory requirements and/or best practice and will protect water resources.

Leading practice for environmental management plans or strategies with respect to the management of co-produced water should:

- undertake assessments to identify site-specific environmental issues associated with use and disposal at each site;
- eliminate risks where possible through good design;
- adopt and implement procedures designed to reduce environmental impacts and set specific objectives that achieve agreed outcomes;
- set standards for collecting and reporting data showing compliance with outcomes specified in the plan;
- make management measures specific, actionable and measurable; and
- provide transparency and accountability through the public release of relevant documents.

The plan should give particular attention to hydraulic fracturing to mitigate any potential adverse environmental impacts. It should state how the hydraulic fracturing process is to be managed and monitored, including the use of chemicals. In addition, arrangements for ongoing monitoring, evaluation, and reporting on procedures and protocols for chemical handling and storage should be specified.

The performance of risk control measures should be routinely assessed on a fit-for-purpose basis with operators reporting on, and regulators probing, the efficacy of measurements, record keeping and trend assessment of failure and incidents, including 'near misses'.

Approval and operating licence conditions should specify compliance with relevant legislation, standards, and codes of practice in order to eliminate or mitigate potential risks to human health or the environment. In addition, the operating licence should contain requirements for ongoing monitoring, evaluation, and reporting on compliance with the operating licence requirements.

Leading practice for risk assessment should include:

- undertaking risk assessment during the design phase with the intent of improving design so that risks are minimised to ALARP and effectively managed;
- implementing operational practices and procedures that reduce risks to ALARP;
- implementing proactive operations and maintenance practices that are tailored to prevent and rectify developing problems before failure;
- undertaking regular and timely reviews of procedures (for example, assess management systems as fit for purpose) to improve current practice; and
- implementing a formal learning and improvement program to enable practices to be improved by operational experience.

**4: Verify key system elements, including well design, water management and hydraulic fracturing processes, by a suitably qualified and authorised person**

Verification is an integral component of the standard operational procedures within the oil and gas sector and is a key to ensuring the success of a risk-based systems approach. The primary objective of verifying key system elements is to ensure the accountability of the operator, the integrity of operational procedures and equipment and legal enforceability by the regulator.

Verification should be undertaken by a qualified professional who is able to certify that the relevant model, plan, construction, deployment, or other requirement is fit for purpose, has been developed by a qualified professional, and meets work health and safety and environmental objectives. The verifying individual may be a suitable senior in-house representative or independent third-party professional. If third party is used, it is critical to assess the quality of their competency assurance systems and audit their records regularly.

Verification of well integrity should include construction, post completion and decommissioning plans. A post completion report should also be submitted to the regulator detailing the well construction and potential variations from the well design. This will help ensure that there are appropriate safety margins to mitigate work health and safety and environmental risks, including risks associated with potential fracturing and operating pressures. These are all key elements in achieving the protection of aquifers and other water resources

Verification of key system elements for the management and monitoring of produced water should include monitoring programs, pipeline design, water treatment, water storage facilities such as ponds or dams, and beneficial use plans (for example, irrigation management plans, surface water release, and re-injection system designs).

To ensure the protection of surrounding aquifers during the hydraulic fracturing process, key elements of the hydraulic fracturing program, such as modelling and planning, variations to design, and the hydraulic fracturing process, should be verified. It is also recommended that a verified fracturing completion report be submitted to the regulator to ensure that there are appropriate safety margins to withstand potential fracturing and operating pressures. A post completion report may be made available to the public if required.

## Analysis

The principles of ecologically sustainable development are defined by the COAG-endorsed National Strategy for Ecologically Sustainable Development (1992). The Strategy guides Australian governments' policy and decision-making processes and is promoted in federal, state and territory environmental legislation and government policy frameworks. Under environmental legislation, companies including CSG operators, have an obligation to address the principles of ecologically sustainable development in their operations. There is also an implicit assumption within leading practice systems that expects companies to go beyond minimum regulatory compliance.

Leading practice in ecologically sustainable development management is an evolving discipline. As new problems emerge and new solutions are developed, or better solutions are devised for existing problems, it is important that leading practices are flexible enough to allow the development of solutions that meet site-specific requirements.

### Environmental impact assessments

Environmental impact assessment processes in jurisdictions vary depending on the nature, extent and location of a particular CSG project. The opportunity for public consultation and participation as part of the environmental assessment process is a common requirement of environmental legislation and is undertaken where appropriate. For example, in Victoria, an EIS usually contains:

- a description of the proposed development;

- an outline of public and stakeholder consultation undertaken during investigations and the issues raised;
- a description of the existing environment that may be affected;
- predictions of significant environmental effects of the proposal and relevant alternatives;
- proposed measures to avoid, minimise or manage adverse environmental effects; and
- a proposed program for monitoring and managing environmental effects during project implementation.

Regulators have an obligation to review and approve environmental impact assessments and apply terms and conditions that are appropriate to the management of the impacts identified in the extraction of CSG. Industry also has a significant role in ensuring environmental impact assessments are sufficiently comprehensive to mitigate all potential risks associated with the project.

The environmental impact assessment can also be undertaken bilaterally with the Commonwealth. A key function of bilateral agreements is to reduce duplication of environmental assessment and regulation between the Commonwealth and the states and territories. Bilateral agreements allow the Commonwealth to 'accredit' particular state or territory assessment processes and, in some cases, state or territory approval decisions. In effect, bilateral agreements allow the Commonwealth to delegate to the states and territories the responsibility for conducting environmental assessments under the Commonwealth *Environment Protection and Biodiversity Conservation Act* (EPBC Act) and in certain circumstances, the responsibility for granting environmental approvals under the EPBC Act. Bilateral agreements may also deal with various other matters, such as management plans for World Heritage properties and cooperation on monitoring and enforcement.

To be accredited, a state or territory process will need to meet 'best practice' criteria. If a proposed project is covered by an assessment bilateral, then it is assessed under the accredited state or territory process. After assessment, the project still requires approval under the EPBC Act.

### Environmental management plans and strategies

Environmental management plans and strategies in jurisdictions provide for the management, control and monitoring of CSG activities that are appropriate for the nature and scale of the activity, outline the planned and potential interactions between the activity and its environmental receptors, demonstrate that environmental impacts and risks will be as low as reasonably practicable and provide appropriate environmental performance standards and measurement criteria.

Environmental legislation provides a robust mechanism to manage CSG projects at the state and federal level. The three CSG–LNG projects currently under construction in Queensland have approximately 1000 state conditions and more than 300 federal conditions each. These conditions ensure the protection of the environment, including groundwater resources, against every aspect of each project, from well fields to the LNG facility and access for LNG carriers. The conditions include ongoing monitoring of projects and allow for continual assessment of the impact to the environment, for example against thresholds for groundwater level drawdown.



Also in Queensland, CSG activities are defined as Environmentally Relevant Activities (ERA). These activities are defined in the Environmental Protection Act 1994 and the Environmental Protection Regulation 2008 (EP Reg). Anyone who conducts an ERA must have an environmental authority (EA). When applying for an EA, operators of petroleum activities must include an assessment of the likely impact of each relevant activity on all environmental values, and strategies for managing impacts.

A site specific application for CSG activities must also include additional information about CSG water management, including: the quantity of water that is expected to be produced; the flow rate at which the water is expected to be produced; the quality of the water; and the proposed management strategies (in accordance with the Coal Seam Gas Water Management Policy 2012).

### Risk control and verification

In some jurisdictions, guidelines require specific actions to be taken in regard to risk management of CSG activities. Specifically, petroleum operations in Victoria require a comprehensive operations plan that addresses environmental, health and safety risks, enabling them to be managed in an integrated manner. In relation to well development, Queensland stipulates that CSG operators are required to undertake a risk assessment to identify the risks that may occur during well construction, operation and abandonment within the state's *Code of Practice for Constructing and Abandoning Coal Seam Gas Wells*.

As previously mentioned, applications for site specific CSG activities in Queensland must provide the following information: the quantity of water that is expected to be produced; the flow rate at which the water is expected to be produced; the quality of the water; and the proposed management strategies (in accordance with the Coal Seam Gas Water Management Policy 2012). This information is collectively known as the CSG water management plan. CSG operators are also required under the *Water Act 2000* to undertake baseline monitoring, spring surveys where applicable, and prepare and submit an underground water impact report which includes a water management strategy and spring impact management strategy.

New South Wales has similar requirements as part of its *Aquifer Interference Policy*, which requires applicants to address potential water impacts (including aquifer compaction, deterioration of ambient water quality and significant soil erosion).

In all jurisdictions, the management of risks associated with chemicals used in CSG activities is stipulated in safety management plan requirements through both the environmental management plan requirements and health and safety legislation.

While not always expressly required in jurisdictions' legislation, conditions may be imposed on CSG projects which require the verification of processes associated with CSG operations. In many cases, approvals are not granted by regulators until specific risk assessments are undertaken and submitted to the relevant authority.

By way of example, in Queensland a hydraulic fracturing risk assessment is required which outlines key elements of the program. A completion notice must also be lodged within ten days of finishing hydraulic fracturing activities. Similar requirements apply in New South Wales under the *Code of Practice for Coal Seam Gas: Fracture Stimulation Activities* (NSW DTI, 2012b).

South Australia's activity notification requires detailed activity information, including an assessment that indicates that a facility, equipment or management system used in drilling,

production or pipeline activity is fit for purpose. The licensee must ensure the report is accurate. Similarly, in the Northern Territory, under the *Schedule of Requirements*, the construction, alteration or reconstruction of drilling and production equipment must not be undertaken without approval (NT, DME, 2012). Where required, a verifying body may be required to verify the design, construction and installation of petroleum facilities.

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## CHAPTER 3: WELL INTEGRITY

### KEY POINTS

- ❖ Well integrity is a fundamental concept applied throughout the petroleum industry in Australia and overseas. It describes the application of technical, operational and organisational solutions to the construction, operation and decommissioning of CSG wells to ensure the protection of water resources, users and the environment.
- ❖ Well integrity is fundamental to the protection of Australia's groundwater assets.
- ❖ Australia's legislative approach to well integrity has been developed from extensive experience in onshore and offshore oil and gas extraction. It is based on international best practice for well design, construction, maintenance and rehabilitation.
- ❖ Leading practice in well integrity is a key strategy for managing impacts associated with CSG activities. It ensures strong governance and rigorous practices and standards in well development to prevent the uncontrolled release of fluids, solids or gases into the environment over the full life cycle of the well.

### KEY FINDING

- 3.1 Australia has comprehensive standards, codes and legislation to international standards which regulate the design, material, construction, maintenance, decommissioning and rehabilitation of CSG wells. These standards and codes must be subject to regular review and revision.
- 3.2 Successful application of leading practice in well integrity depends on consistent compliance and continual improvement by industry and thorough and effective enforcement by qualified regulators.

## WHAT IS WELL INTEGRITY?

Well integrity describes the application of technical, operational and organisational solutions to the construction, operation and decommissioning of CSG wells. Maintaining well integrity prevents the uncontrolled release of fluids, solids and gases into the subsurface or surface environment over the full life cycle of the well.

Well integrity is the primary risk management tool for the protection of aquifers, the environment and the community.

The design of CSG wells draws on experience, established techniques, equipment and materials used in the petroleum industry throughout the world. The application of this expertise ensures that the materials used in CSG well construction are durable and capable of preserving well integrity.

CSG well design will vary according to the structure of the geological formations and aquifers that it passes through and the position of the coal seam or seams targeted for CSG extraction. As a CSG well is drilled, it will pass through various formations including formations that separate aquifers from each other and from coal seams. To prevent cross-flow of gas or water between different geological formations, CSG companies apply a strategy of 'zonal isolation' with a system of steel casing and cement placed within a well.

The diameter of the well bore at the surface is generally between 10 and 30 centimetres. Each time the well intercepts a significant geological formation, a corrosive-resistant steel casing, slightly smaller in diameter than the well bore, is inserted in the well. Cement is then pumped under pressure between the wall of the well bore and the outside of the casing.

After the cement is set, the integrity of the casing and cement is confirmed using a pressure test. Additional work may be conducted until the integrity of the well is confirmed. Drilling then continues to either the coal seam or the next significant geological formation, where the 'zonal isolation' technique may be repeated.

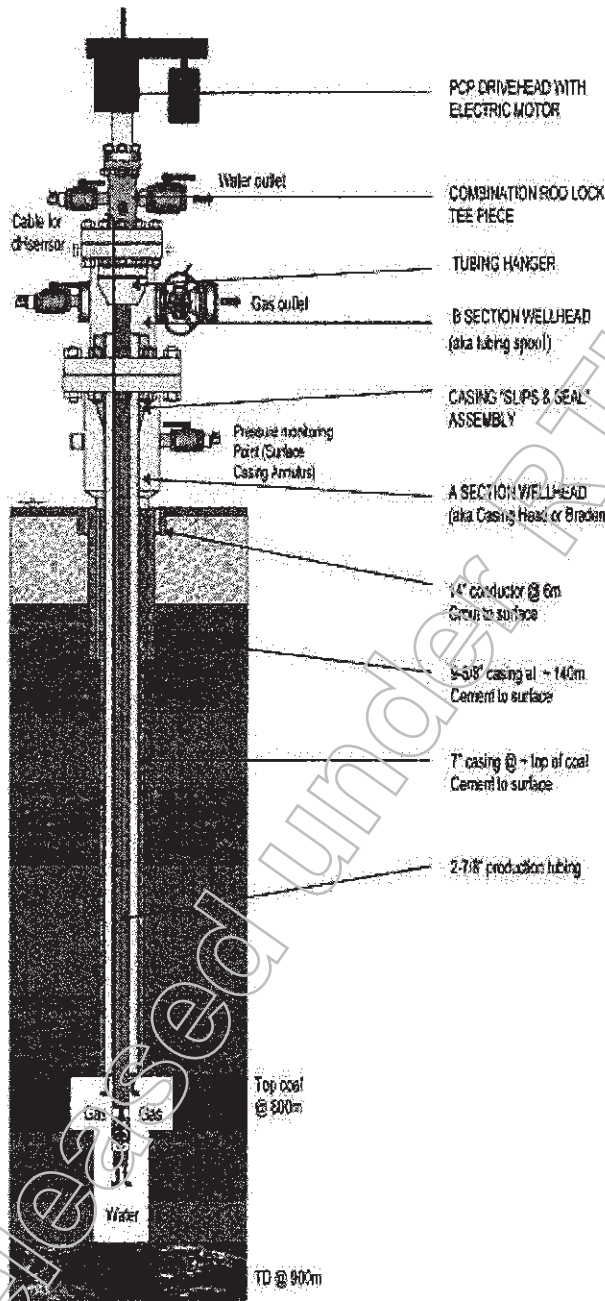
This technique results in a telescopic arrangement, with the steel casing and cement lining decreasing in diameter each time it passes through a significant geological formation. This isolation technique has been standard practice in the oil and gas industry for decades.

Figure 3.1 shows a typical CSG well.



Figure 3.1: Schematic of a typical CSG well

NOTE that A section would normally be set below GL. Shown above GL for illustration purposes only.



Source: NSW Government (2012).

## Well integrity in CSG development

Ensuring well integrity during the construction, operation and abandonment of CSG wells is fundamental to ensuring sustainable gas production and a safe work place. It also provides effective protection for the environment and has particular significance to the protection of ground and surface water resources.

In Australia, CSG wells are regulated through comprehensive standards, codes and legislation, which ensure the integrity of their design, material, construction, maintenance and rehabilitation. Companies and regulators have auditing and compliance requirements to ensure the effective implementation of regulations.

The application of leading practice to well integrity encompasses well design and location; drilling and well completion (including casing and cementing); hydraulic fracturing; surface operations; collection and distribution of gas and produced water; well decommissioning and sealing; and emergency response.

Well integrity ensures the ongoing isolation of the targeted CSG layers from other geological layers or aquifers. The gas and fluids produced from the well must travel directly from the producing zone to the surface inside the well casing, without contaminating groundwater resources. Effective steel casing and cementing prevents the creation of migratory paths for poor-quality water or other potential contaminants from coal seams, drilling fluids or fracking operations into groundwater systems. It also prevents over-pressurisation in the well or blowouts at the surface.

When a CSG well is no longer required, it is decommissioned. Decommissioning involves sealing the well to prevent the intermixing of fluids and pressures between aquifers, the escape of fluids to the surface and injury and/or harm to the environment and people.

The potential impacts that could arise from poor well integrity are outlined in Table 3.1.

**Table 3.1: Key potential impacts of poor well integrity**

1	<p>Poor well integrity caused by ineffective cementing, the use of inappropriate materials, failed well casings or other well construction, operational or decommissioning shortcomings (e.g. standards applied do not account for the life span of the materials used in construction)</p> <p>(Note: While <b>poor</b> well integrity is an issue, conversely <b>leading practice</b> well integrity is a key impact management measure.)</p>	<ul style="list-style-type: none"> <li>Hydraulic connectivity between otherwise isolated aquifers with different water qualities causing contamination and potentially unwanted alterations to water flows</li> <li>Contamination of water at the surface and subsurface by drilling and hydraulic fracturing fluids and geogenic (naturally occurring) compounds</li> <li>Migration of gas into surrounding aquifers, wells and water bores, and the surface</li> </ul>
2	<p>Over-pressurisation of the well head due to poor operational practices or through encountering over-pressured formations in the subsurface</p>	<ul style="list-style-type: none"> <li>A blowout at the surface or in the subsurface may cause injury to the drilling crew and contamination by allowing the escape of drilling and hydraulic fracturing fluids and gas into groundwater or the surface.</li> </ul>

### Leading practices

(Relates to leading practices 1, 2, 3, 4, 5, 6, 7 and 12)

The first four leading practices discussed in Chapter 2 also apply to issues of well integrity. The leading practices that will mitigate issues associated with well integrity are discussed in detail below with Leading Practice 12 being discussed in Chapter 5. The use of a number of technical terms in these practices is difficult to avoid without leading to potential confusion through using generalities and vague approximations but has been limited as much as practical.

**5: Apply strong governance, robust safety practices and high standards in design, construction, operation, maintenance and decommissioning for CSG wells.**

The ultimate responsibility for ensuring well integrity is on the title holder rather than the drilling company. There are well documented industry standards, codes of practice and procedures, and industry experience that should be considered in the design, construction, operation, maintenance and decommissioning of CSG wells and associated facilities.

An example of this is the American Petroleum Institute's guidance document; *Hydraulic Fracturing Operations – Well Construction and Integrity Guidelines* (API 2009) and associated guidelines for drilling and completion, casing, cement selection and cement practices, well logging and testing and hydraulic fracturing.

The Guideline provides recommended practices for well construction and well integrity for wells that will be hydraulically fractured. It stipulates that well design and construction must ensure that no leaks occur through or between any casing strings. The fluids produced from the well (oil, water, and gas) must travel directly from the producing zone to the surface inside the well conduit. The design basis for well construction emphasises barrier

performance and zonal isolation using the fundamentals of wellbore preparation, mud removal, casing running, and cement placement to provide barriers that prevent fluid migration. The selection of the materials for cementing and casing is important, but is secondary to the process of cement placement. The performance of the barrier system to protect groundwater and isolate the hydrocarbon bearing zones is of utmost importance.

Ongoing monitoring of well conditions throughout the life of the well must also be undertaken to ensure integrity of the well and well equipment. Monitoring of the mechanical integrity and well pressure should be undertaken on a regular basis and in the event of potential casing disturbance. An annual report must be submitted to the regulator and include, but not be limited to, pressure testing, visual inspections and details of any work-overs carried out on the well.

Decommissioning and well abandonment must ensure the environmentally sound and safe isolation of the well for the long term. It must ensure the protection of groundwater resources, isolation of the productive formations from other formations, and the proper removal of surface equipment.

#### **6: Require independent supervision of well construction**

Well construction is central to long term integrity of the well through to decommissioning and post closure management. Arrangements for independent supervision of well construction must be demonstrated to the satisfaction of the regulator. The emphasis of this leading practice outcome is to ensure appropriate quality assurance and control during the construction phase. CSG wells must be constructed according to the well development plan, with particular attention paid to the integrity of the cement. If situations arise where the integrity of the wells could be compromised, it is the responsibility of the drilling supervisor to ensure that they are managed appropriately.

The drilling supervisor should supervise key activities, such as:

- the monitoring of the return of cement during the cementing process;
- the testing of the return cement for curing properties and the maintaining of a cement log (including samples);
- wire line logging (cement bond logging and the variable density log);
- the monitoring of well pressures, particularly during hydraulic fracturing; and
- the submission of the post completion report to the regulator.

Regulators should undertake random site inspections to ensure compliance by CSG operators. These may include the use of independent auditors.



**7: Ensure the provision and installation of blowout preventers informed by a risk assessment**

Properly maintained blowout preventers (BOPs) stop the uncontrolled release of drilling fluids and hydrocarbons from the well in the event that an over pressurised zone is encountered, and are important for reducing work health and safety risks for the well crew. The BOP is the final resort to prevent a surface blowout occurring.

A BOP is placed at the top of a well during drilling to shut down the well and contain fluid and gas within the wellbore. If the BOP is triggered, any vulnerability in casing and cement could potentially cause a failure in well integrity, allowing fluid to escape into surrounding subsurface formations (an underground blowout) or to the surface. Once a well is completed, the BOP is replaced with a series of valves to connect the well to the gas export pipeline.

The installation of a BOP is not necessary in all geological situations. A risk assessment can be undertaken on each CSG well, or group of wells, to assess the need for the installation of a BOP. Irrespective of the legislative requirements, most operators would install a BOP as standard practice for safety reasons. At a minimum, every CSG well should be designed to include the provision of a BOP in case it is required.

### **Analysis**

In all Australian jurisdictions, CSG wells and their associated facilities are made low risk through compliance with high design standards, robust safety obligations, documented industry standards and experience, and through strong governance programs.

Well integrity in all jurisdictions is managed through petroleum and gas regulation, which stipulates broad requirements for petroleum wells from construction to decommissioning, as well as work health and safety requirements. This legislation also references international standards for 'good oilfield practice' or 'good industry practice'. This is a generic concept, with many jurisdictions defining good oilfield practice in legislation. For example, the *Petroleum and Geothermal Energy Resources Act 1967 (WA)* defines the term to mean 'all those things that are generally accepted as good and safe in the carrying on of exploration for petroleum, or in the operations for the recovery of petroleum, as the case may be'. Along with the Guideline previously mentioned, the American Petroleum Institute also provides guidelines for drilling and completion, casing, cement selection and practices, well logging and testing and hydraulic fracturing.

The design, construction and choice of materials are the fundamental pillars for well integrity over the life of the well. In all instances of well design, onshore or offshore, conventional or unconventional, Australian regulators require approved work plans that outline all aspects of design, construction and management before operators can commence construction.

Codes of practice for well integrity provide certainty of the regulatory requirements for CSG operators and allow the community to understand the stringent requirements that apply. They provide an easily understood guide, which outlines the application of the legislation as it relates to the various aspects of the CSG operation. Codes of practice also consolidate the regulatory requirements in a single document, rather than requiring navigation through multiple acts and regulations.

The Queensland and NSW Governments have developed codes of practice that stipulate CSG-specific requirements for well integrity (Box 3.1).

**Box 3.1: Well integrity codes of practice**

The *Code of Practice for Construction and Abandoning CSG Wells* in Queensland has been developed to ensure that all CSG wells are constructed and abandoned to a minimum acceptable standard resulting in long-term well integrity, containment of gas and the protection of groundwater resources.

The Queensland code is designed to complement the CSG operator's internal risk assessment processes and operating procedures. It outlines the recommended process for managing the construction of CSG wells and their eventual abandonment throughout Queensland. This ensures that these activities are completed in a consistent manner and that the processes are effectively monitored to ensure that:

- the environment and, in particular, underground sources of water are protected
- risk to the public and CSG workers is managed to a level as low as reasonably practicable
- applicable Australian and international standards and regulatory requirements, as well as the operator's internal requirements, are understood and implemented
- the life of a CSG well is managed effectively through appropriate design and construction techniques and ongoing monitoring.

The NSW Code of Practice for Coal Seam Gas – Well Integrity provides a practical guide for CSG titleholders to ensure that well operations comply with NSW legislation and are carried out safely, without risk to health and without detriment to the environment. These guidelines are an essential minimum set of requirements to ensure that:

- the health and safety of workers, landholders and other persons is not put at risk arising from well operations, so far as is reasonably practicable
- risks to the environment (surface water and groundwater, air, vegetation, fauna) are identified, eliminated where possible or minimised through appropriate management practices
- water used in well operations is properly sourced
- waste products are safely and appropriately managed
- landholders, local councils and relevant authorities are notified of specified well operations in a timely manner
- regulatory requirements are understood and implemented.

Both codes mandate that the design basis for CSG wells must incorporate the following:

- consideration of casing setting depths taking into account aquifer and production zone locations, and the requirements for well control
- provision for installation of blowout preventers; use of appropriate casing weight and grade, and casing running procedures
- use of appropriate well design and construction materials
- use of appropriate casing centralisation
- use of engineered cement slurry and effective cement placement techniques
- design to ensure all fluids produced from the well travel directly from the production zone to the surface without groundwater contamination.

The codes also mandate monitoring and maintenance requirements. They require that throughout the life of a producing well, well conditions must be monitored to ensure ongoing integrity of the well and well equipment. Monitoring mechanisms and frequencies are determined by a comprehensive risk assessment. Monitoring includes mechanical integrity with pressure and corrosion monitoring to determine the integrity of casing and other well equipment when the well is producing and during well intervention/workover operations.

Reporting requirements are specified under the relevant petroleum legislation for each jurisdiction. A number of well reporting requirements are stipulated, including daily drilling reports, well completion reports and well abandonment reports. It is the responsibility of the CSG operator to ensure that these reporting requirements are fulfilled. In addition, cementing reports, materials reports, cement pump charts, pressure records, and logging reports are other examples of reports which must be completed and submitted to the regulator with well completion reports.

**Box 3.2: Examples of mandatory well abandonment requirements**

The NSW and Queensland codes specify mandatory well abandonment requirements. In Queensland, for example:

1. For production wells:

- A cement plug must be set inside the casing as close as practical above the uppermost hydrocarbon production zone. This plug must be pressure tested to 500 psi (3.5 MPa) above the estimated (or previously recorded) leak off pressure. Where this plug is not cemented to surface, the plug must also be tagged with a minimum 2000 lb (1000 kg) set down weight.

2. For exploration wells:

- A cement plug must be set across the open hole section and inside the lowermost casing shoe. This plug must be pressure tested to 500 psi (3.5 MPa) above the estimated (or previously recorded) leak off pressure. Where this plug is not cemented to surface, the plug must also be tagged with a minimum 2000 lb (1000 kg) set down weight.

3. For all wells:

- There must be a minimum of two adjacent cement barriers across all formations above the uppermost hydrocarbon production zone.
- The innermost casing string must be filled to surface with cement.
- The blowout preventers and/or wellhead must not be removed until the cement plug across the surface casing shoe or plug across the uppermost perforations has been physically tagged for correct location and pressure tested.
- Wellheads must be removed, and casing must be cut greater than 1.5 metres below surface. A wellhead marker plate must be installed as per legislative requirements.
- Complete and accurate records of the entire abandonment procedure must be kept, with these records submitted as part of the legislative reporting requirements for the abandonment of CSG wells.

## CHAPTER 4: WATER MANAGEMENT AND MONITORING

### KEY POINTS

- ❖ The potential impact of CSG developments on groundwater resources is a significant source of community concern.
- ❖ The issues that arise can be broadly categorised as depletion and contamination of water resources, each of which could affect existing groundwater users, inter-aquifer connectivity, groundwater to surface water interactions and groundwater-dependent ecosystems.
- ❖ Baseline and ongoing monitoring is critical to informing the development of sustainable water impact management strategies to ensure the effect on the level and quality of water resources is kept within acceptable limits.
- ❖ Maximising the productive long-term use and sustainable management of water resources has a significant role to play in alleviating the impact of water extraction by the CSG industry on other water users and the environment.
- ❖ Applying leading practice in water management and monitoring ensures that governments take steps to improve evidence-based decision-making and increases certainty for CSG operators to assist their compliance with their legislative obligations. It also improves transparency and communication with the community on what governments are doing to manage potential CSG water impacts.

### KEY FINDINGS

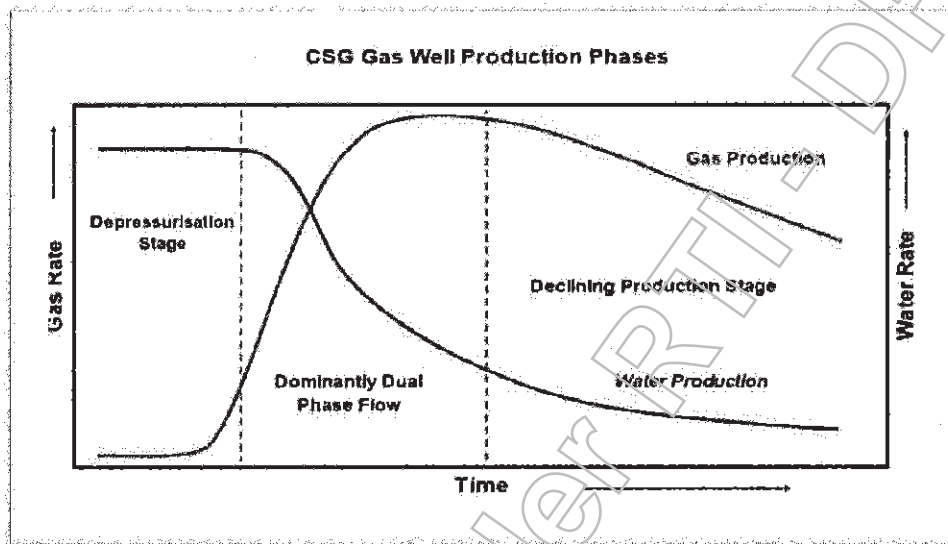
- 4.1 The Commonwealth, with advice from the Independent Expert Scientific Committee and input from relevant jurisdictions, should continue to develop and implement its research program on the water-related impacts of coal seam gas development. This research will help ensure that decision involving CSG projects that may have a significant impact on water resources are based on the best available science.
- 4.2 Jurisdictions employ a variety of processes for the management of produced water. In particular, there are differences in approach to the licensing and management of produced water. While these approaches derive from different regulatory rationales, they have the same strategic intent of achieving balanced and consistent outcomes, including protection of the environment and the rights of other water users.
- 4.3 The use of reinjection as a means of disposal of waste water and brine into suitable underground systems is a method that has not been widely considered in Australia. Governments should evaluate international leading practices for application in Australia.



## Water in CSG development

Coal seam gas is held in coal seams by water pressure. As water is pumped from the coal seams (a process called depressurisation), the pressure is lowered and the gas is released. As water pressure is reduced, gas flow increases and water flow rates decrease from each well, typically to around a quarter to a third of the initial flow over a period of a few months to a few years, depending on the hydrogeological conditions of the seam (NWC, 2011; QWC, 2012b). The water produced in this fashion is termed produced (or associated) water.

Figure 4.1: Typical gas and water flow in CSG production



Source: QWC, 2012b.

The volume of produced water extracted from each well can vary considerably between wells and regions. For example, over the life of a well, the typical water production in the Surat Basin has been assessed at 0.4 ML/day to 0.8 ML/day before decreasing to 0.1 ML/day, compared with the Camden field in the Sydney Basin, which produced 0.20 ML/day before decreasing to 0.02 ML/day (RPS, 2011). The quality of produced water also varies significantly, from near potable to brackish (moderately saline). Typically, produced water is of a quality that significantly restricts its potential use or disposal unless treated.

The impact of CSG development on groundwater resources is a significant source of community concern. The issues that arise can be broadly categorised as depletion and contamination of water resources, each of which could affect existing groundwater users; inter-aquifer connectivity; groundwater to surface water interactions; and groundwater-dependent ecosystems.

The key inter-related issues for water management in CSG activities are associated with:

- depressurisation of coal seams potentially affecting surrounding aquifers;
- contamination of surface water or groundwater;
- management (recovery, storage, transport, treatment and disposal) of produced water and post-treatment wastes and by-products;
- beneficial use of produced water (including reinjection); and
- safe decommissioning of wells ensuring long-term aquifer integrity.

The potential impacts of the extraction of large volumes of produced water require management in both the short and long term. Depressurisation of groundwater systems will occur where large volumes of groundwater are extracted as a consequence of CSG production in the coal seams and in those localities where there may be close hydraulic connectivity between the coal seams and adjacent aquifers. The extent of impacts will vary from site to site depending on the degree of connection between aquifers, the hydraulic properties of the coal seam including any potential changes to hydraulic properties resulting from hydraulic fracturing, the volume of produced water, and any remedial measures such as reinjection or substitution (beneficial use of produced water which substitutes for water that would otherwise have been extracted from aquifers). The recently published Great Artesian Basin Water Resources Assessment identifies more complex hydrologic connections between aquifers than previously understood.

In addition to lowering groundwater pressures and water levels in bores, the large-scale depressurisation of the coal seams has the potential to release gas into water bores that have been drilled through the coal seams. There are minor coal seams embedded through most of the formations in the Surat Basin and a number of water bores intersect these coal seams. When the target coal seam is depressurised, the surrounding aquifers may also be depressurised to some extent where there is close hydraulic connectivity, and in some instances gas can be released (desorbed) from these minor coal seams and be detected in private water bores. However, in many cases the water bores tend to be relatively shallow (that is, less than 100 metres) compared to CSG wells, which will limit the potential for gas migration into water bores.

Methane has been found to occur naturally in many Australian water bores including prior to any development by the CSG industry. The situation is made more complex by thousands of existing water bores and numerous exploration wells from previous activities (legacy wells) that may already be facilitating methane migration into aquifers, particularly if these bores are of questionable integrity.

Depending on the final use and quality, produced CSG water may require further treatment to make it suitable for beneficial use or discharge. Treatment processes often involve some form of desalination and may produce a significant waste stream of concentrated saline water, also known as brine. There are a number of potential industrial uses for brine but there is currently no market capable of handling the volume of brine production associated with the growing CSG sector. Industry is seeking long-term solutions to brine disposal. The management of brine requires a rigorous risk assessment to ensure its safe disposal.

The potential issues associated with water management in CSG operations are outlined in Table 4.1.

Table 4.1: Key potential issues associated with water management

No.	Issues	Potential Impact
3	Depressurisation of coal seams to enable the production of CSG	<ul style="list-style-type: none"> <li>• Reduced aquifer levels and pressures with volume and quality implications for other users, groundwater-dependent ecosystems and unwanted surface water interactions with groundwater over the short and long term (intergenerational equity)</li> <li>• Cumulative impacts from multiple projects and local versus regional impacts</li> <li>• Altered hydraulic gradients produce mixing and cross contamination between different aquifers and between aquifers and surface waters with different quality characteristics</li> <li>• Migration of gas (and its rate) into surrounding aquifers, wells and water bores, and the surface</li> <li>• Reduced water pressure in subsurface layers enables compression of layers, alteration of hydraulic properties and subsidence at the surface</li> </ul>
4	Poor or inappropriately decommissioned wells and bores, abandoned wells and bores; legacy wells and bores (including from exploration and activity in other sectors)	<ul style="list-style-type: none"> <li>• Localised hydraulic connectivity causing contamination of aquifers and surface waters by chemicals, geogenics and the migration of gas. Depressurisation of coal seams may accelerate these effects</li> </ul>
5	Poor management and handling of produced water. This includes the extraction, storage, transport and treatment stages; impacts from leaks (i.e. of storage dams), dam wall collapse, salt crystallisation, and accidental discharge, as well as hazardous events such as flooding	<ul style="list-style-type: none"> <li>• Contamination of the surrounding environment, including surface water and land, and shallow groundwater</li> <li>• Venting of gas and other volatile chemicals to the atmosphere in recovery of gas and produced water</li> <li>• Management of intentional discharges of coproduced CSG water into the environment</li> </ul>
6	Inappropriate use and disposal of produced water, including: use of untreated or poorly treated water; inappropriate quality in end-use applications (e.g. dust suppression, irrigation, crop and stock watering); and failure of monitoring and analysis procedures	<ul style="list-style-type: none"> <li>• Contamination of the surrounding environment, including surface and shallow groundwater and land (e.g. increased salinity, water logging of soils)</li> <li>• Undetected contamination of the surrounding environment, including surface and shallow groundwater and land</li> </ul>
7	Reinjection of produced water. Note: While the reinjection of produced water is an issue, it is also an important leading practice for recycling produced water for beneficial use	<ul style="list-style-type: none"> <li>• Potential for reinjection to cause deleterious changes in background water chemistry which may lead to changes in the beneficial use category of the water resource</li> <li>• Potential for seismic events of sufficient magnitude to cause damage at the surface (induced seismicity)</li> </ul>
8	Improper storage, transport and disposal of wastes including permeate, brine, salt and other contaminants, including through accidents, spills and hazardous events (e.g. floods)	<ul style="list-style-type: none"> <li>• Contamination of the surrounding environment, including surface and shallow groundwater and land</li> </ul>

## Leading practices

(Relates to leading practices 1, 2, 3, 4, 5, 8, 9, 10, 11 and 12)

In addition to the overarching leading practices that apply to all elements of this Framework, four further leading practices will contribute to the mitigation of impacts associated with water extraction. Leading Practice 12 in Chapter 5 also applies to this section.

### **8: Require the implementation of baseline and ongoing monitoring for all vulnerable water resources**

Undertaking baseline assessments and ongoing monitoring of all vulnerable water resources relating to the project will allow the CSG operator to obtain key information prior to commencement, and throughout the life, of the CSG operation. This includes an assessment of existing water bores, surface waters and waterways, groundwater systems, springs and other potential groundwater-dependent ecosystems. The data obtained provides information about the level and quality of water that may be affected by CSG activity, including the depressurisation of coal seams.

Initial and ongoing monitoring can inform the development of impact management strategies to ensure the effect on the level and quality of water resources is kept within acceptable limits as determined by the regulator. A comprehensive monitoring program will also assist in the detection and remediation of legacy wells from previous water uses located on tenements held by CSG companies.

The baseline assessment gives a reference point to the background level of mineral salts and other substances present in the aquifers and may give an indication of any existing interconnectivity between aquifers and other water sources, including with the gas-bearing coal seams (which may themselves be locally important water sources).

An ongoing program of monitoring of these sites is required throughout the CSG operation's life cycle to detect changes in quality and levels of water, gas flow and coal seam permeability and to enable a timely regulatory or operation responses if required. Regular monitoring of bores during drilling operations will detect any potential contamination from drilling fluids or gas. The presence of contaminants should be immediately reported to the relevant government agency. Early identification of contaminants will enable the operator to shut down the drilling process, assess the risk and redesign the process (if required), in consultation with regulators and environmental protection agencies. In the event of widespread evidence of gas in adjacent groundwater, the regulator may consider the future viability of operations from that well or area. Unexpected changes in water level, or changes beyond certain thresholds, may trigger a similar process.

### **9: Manage cumulative impacts on water through regional-scale assessments**

An assessment of the cumulative impacts of multiple CSG projects can determine and analyse potential impacts on water resources extending across large areas. Regional-scale numerical groundwater models, developed with reference to the Australian Groundwater Modelling Guidelines (NWC, 2012b), can be used as both a predictive and monitoring tool to assess potential impacts on water resources. As CSG production proceeds more data will become available and this can be used to further refine the model. The accuracy of the model may therefore change throughout the life of the development. Modelling audits should be undertaken on a regular basis (every two to three years, or as new information arises through relevant research and the activities of the Independent Expert Scientific



Committee on Coal Seam Gas and Large Coal Mining (IESC) to assess the effectiveness of the model used.

**10: Ensure produced water volumes are accounted for and managed**

The overall objective of the leading practices for water is to ensure the sustainable management of the resource for the short and long term. It should provide a clear, transparent and adaptive management regime which includes the comprehensive monitoring, accounting and reporting of water extraction. This will inform water planning processes including allocation of water to meet community needs, provide balance with other users and allow for economic development in a manner that protects natural ecosystems and other resources from degradation.

Part of meeting this objective requires produced water from CSG to be properly accounted for in order to manage the resource and potential impacts on other users and the environment.

The Bureau of Meteorology has responsibility under the Water Act 2007 (Commonwealth) to prepare annual National Water Accounts and Water Accounting Standards, to improve transparency and accountability related to the accounting of water resources.

The application of leading practice water accounting allows the CSG operator, regulators and other relevant sectors to know the volume of produced water to be managed, where it is located, where it is from, and how it is to be used or disposed of, which in turn informs water resource planning.

Leading practices in water accounting should contain the following elements:

- assessment of the potential impacts prior to approval to extract produced water;
- measurement and management of adverse environmental impacts of produced water throughout and after the CSG operation in an adaptive management framework;
- assessment and accounting of produced water according to an NWI-consistent framework, based on sound science to inform water resource planning processes;
- monitoring and assessment of the impacts of CSG water production against set thresholds for groundwater level drawdowns in springs and water bores;
- compensation, including make-good arrangements, for existing surface water and groundwater users (including public benefit use) impacted by CSG water production; and
- shared responsibility between regulators and industry to minimise environmental harm and protect the rights of existing and future users of the water resources in terms of quantity and quality.

In order to develop a numerical groundwater model, it is necessary to develop a simplified conceptualisation of the hydrogeological environment. Model predictions will differ from the real world to some extent and observed impacts may be greater or less than predicted. Accordingly, ongoing monitoring and adjustments to models are required to address differences between observations and predictions.

**11: Maximise the recycling of produced water for beneficial use, including managed aquifer recharge and water substitution**

Maximising the productive long-term use and sustainable management of water resources has a significant role to play in alleviating the impact of water extraction by the CSG industry on other water users and the environment.

There are a range of options for the management or disposal of large volumes of produced water. Wherever possible, produced water from CSG projects should be recycled for beneficial use and avoid damaging environmental impacts. Beneficial uses include reinjection into the same or different aquifers, appropriate discharge to surface waters, or direct provision to other water users providing the water is of a suitable quality and complies with required standards.

Providing treated water to water users as a substitute for current aquifer extractions has the potential to reduce demand on a particular resource provided the current water extraction ceases or is reduced. The volume of produced water also varies (declining over time as the coal seams are dewatered), which may pose difficulties for some beneficial uses that require long-term security of supply, such as some farming enterprises.

When recycling is not feasible, produced water should be disposed of in accordance with the conditions of an approval issued by the relevant environmental authority.

If water reinjection is adopted by the project operator for either beneficial use as an aquifer recharge mechanism or disposal, the evaluation and risk assessment of the reinjection program should include consideration of potential impacts.

### **Analysis**

Australia is a water-constrained country and governments at every level understand the vital importance of our groundwater and surface water resources. Water resources such as the Great Artesian Basin and the Murray–Darling Basin are of major importance to the eastern states, not only as a water source for human consumption, but also for agriculture and industry.

The National Water Initiative is the national blueprint for water reform and is a shared commitment by governments to increase the efficiency of Australia's water use, leading to greater certainty for investment and productivity, for rural and urban communities, and for the environment (COAG, 2004a).

All Australian governments have agreed to implement the National Water Initiative:

' in recognition of the continuing national imperative to increase the productivity and efficiency of Australia's water use, the need to service rural and urban communities, and to ensure the health of river and groundwater systems by establishing clear pathways to return all systems to environmentally sustainable levels of extraction'. (NWI Preamble)

## National Water Initiative

The National Water Initiative (NWI) establishes a cohesive national approach to the way Australia manages, plans for, measures, prices and trades water. NWI principles include transparency, stakeholder consultation and conjunctive management of surface and ground water resources.

To assist all jurisdictions in developing and implementing NWI consistent water planning and management arrangements, the Council of Australian Governments approved the *NWI Policy Guidelines for Water Planning and Management* (COAG, 2010) (NWI Policy Guidelines).

The NWI includes provisions for states and territories to assess the risks to a water system on an ongoing basis in determining a need for a water plan. Any decision that a water plan is not applicable in certain areas should be supported by a risk assessment. In areas where an existing water plan encompasses an aquifer proposed to be used for CSG production, water extractions from that aquifer should be monitored and accounted for, and existing users including the environment, should be protected.

The NWI recognises that there may be circumstances facing the minerals and petroleum sectors that require special water management arrangements to be put in place beyond the scope of the NWI (Clause 34). However, the NWI Policy Guidelines note that this does not preclude jurisdictions from including these industries in their water planning regimes.

It is important that consideration is given to current and future water resource requirements to ensure that water allocation is managed to minimise the risk of potential third party impacts.

The NWI Policy Guidelines further specify principles in relation to the management and accounting of mining in water planning, including:

- *Integrating mining into water planning processes.* Water resource impacts of mining and other extractive industries should be brought into the water planning process to ensure an integrated approach. However, in doing this there will be a need to recognise relevant legislative requirements.
- *The cumulative effect of all water use by mining and other extractive industries, including energy generation, should be authorised and accounted for in water budgets and managed under regulatory arrangements that are part of, or consistent with, water plans.* Much of this information is currently provided under existing legislative arrangements and should be utilised in the water planning framework.
- *Minimising the impact on aquifers.* Regulation of mining and other extractive industries should ensure that the impacts of activities outside the water entitlement system that could interfere with the integrity (and quality) of an aquifer, for example, drilling or excavation, are understood prior to approval.
- *Protection of existing rights.* Regulation of mining and other extractive industries should ensure the legitimate water access rights of existing users are protected.

With the emergence of the CSG industry, governments have implemented a number of further measures to improve the management and monitoring of Australia's water resources.

Dating from 2011, the Commonwealth has taken actions to strengthen the science that underpins the regulation of CSG and large coal mining development. An Independent Scientific Advisory Committee on Coal Seam Gas and Large Coal Mining Development (IESC) has been established to provide advice to Commonwealth and state and territory regulators on those projects where there is likely to be a significant impact on water resources. The IESC's approach to providing advice to regulators is outlined in published documents, including its information guidelines (<http://environment.gov.au/coal-seam-gas-mining/project-advice/pubs/iesc-information-guidelines.pdf>).

The IESC advocates a risk assessment approach using the water balance within the relevant bioregion as the most appropriate basis for assessing risk and understanding potential impacts on water related assets. The information guidelines clarify for industry and regulators the information needed by the Committee to enable robust scientific advice.

The Commonwealth has invested heavily in research. A critical element of the research agenda will be bioregional assessments (refer text pg 42). In addition, there have been 31 initial knowledge projects and literature searches commissioned by the Office of Water Science. These projects have been arranged in thematic groupings:

- Aquifers - taking into account both aquifer contamination and aquifer integrity
- Aquatic health - including co-produced water
- Chemicals: human and environmental health
- Groundwater and surface water processes (and ecosystems)

The projects are designed to tackle critical gaps in scientific understanding about the potential water-related impacts of coal seam gas and/or large coal mining development. The research will help strengthen regulatory decisions and increase scientific evidence around regional scale management of coal seam gas and coal mining industry.

To give effect to these initiatives, the Commonwealth has entered into a National Partnership Agreement on Coal Seam Gas and Large Coal Mining Development with a number of states and territories.

### Baseline and ongoing monitoring

Existing requirements across all jurisdictions for environmental management plans or statements of environmental objectives provide a basis for the management, control and monitoring of water resources affected by CSG activities.

In addition, environmental regulators require CSG companies to establish groundwater monitoring networks to provide a baseline dataset prior to the commencement of CSG activities. While criteria for monitoring networks may vary between jurisdictions, regulators will consider the adequacy of a network after considering independent advice on areas to be subject to monitoring. This baseline data includes information about water bores, such as the level and quality of the water in the bore, and provides important verification of predictive models. Predictive models are required to be revised and recalibrated over time based on the data collected. These models are then used identify the impacts on environmental values and other users of the water resources.



By way of example, under the *Environmental Protection Act 1994* (QLD), anyone who conducts an environmentally relevant activity must have an environmental authority (EA). When applying for an EA, operators of petroleum activities must include an assessment of the likely impact of each relevant activity on all environmental values, and strategies for managing impacts. A site specific application for CSG activities must also include additional information about:

- the quantity of water the applicant reasonably expects will be generated in connection with carrying out each relevant CSG activity
- the flow rate at which the applicant reasonably expects the water will be generated
- the quality of the water and the changes in the water quality that the applicant reasonably expects will happen while each relevant CSG activity is carried out
- the proposed management of the water, including the use, treatment, storage or disposal of the water
- criteria against which the applicant will monitor and assess the effectiveness of the management of the water, including criteria for each of the following:
  - the quantity and quality of the water used, treated, stored or disposed of
  - protection of environmental values affected by each relevant CSG activity
  - the disposal of waste, including, for example, salt generated from the management of the water
- the action that is proposed to be taken, if any of the criteria are not satisfied, to ensure the criteria will be able to be satisfied in the future.

With regard to baseline monitoring, CSG operators in Queensland are required under the *Water Act 2000* (Qld) to undertake baseline monitoring of existing groundwater users, spring surveys and develop underground water impact reports, including water monitoring strategies and spring impact management strategies. Consideration of unexpected or extreme events, such as extreme weather, accidents, or similar, is also required as part of these management plans. In addition, operating licences contain requirements for ongoing monitoring, evaluation, and reporting on compliance. The Queensland Department of Environment and Heritage Protection have published guidelines to assist CSG operators in the preparation of baseline assessments (QLD DEHP, 2012a).

In New South Wales, regulatory arrangements and the Aquifer Interference Policy place similar requirements on CSG companies operating in that state (NSW DPI, 2012). If CSG production is proposed in jurisdictions other than Queensland and New South Wales in the future, governments in those jurisdictions will need to consider appropriate baseline monitoring requirements.

### Regional-scale water assessments

A number of initiatives have been commenced or completed to provide regional-scale water assessments to identify the potential local and regional impacts.

The *Water Act 2000* (Qld) allows the declaration of a cumulative management area if an area contains two or more petroleum tenures (including CSG tenures) where there may be cumulative impacts on groundwater resulting from extraction by tenure holders. Responsible entities must prepare, consult on and submit an underground water impact report. If this report relates to a tenure located outside a cumulative management area, the responsible entity will be the petroleum tenure holder, such as a CSG operator. If the report

is being prepared for a cumulative management area, the Queensland Office of Groundwater Impact Assessment is the responsible entity.

An underground water impact report includes a comprehensive water monitoring program, projections of potential future water level impacts (including the immediately affected area which triggers requirements for bore assessments and certain make-good obligations) and a spring impact management strategy. If a bore has been identified as being located in an immediately affected area, a bore assessment must be undertaken within 60 days of the report taking effect.

The Office of Groundwater Impact Assessment in Queensland is assessing the cumulative impacts of CSG activities in the Surat and southern Bowen Basins and will be producing an underground water impact report every three years, covering the total region deemed to be potentially affected by the cumulative effects of all CSG proponents on a single groundwater resource. The first such report for the Surat Cumulative Management Area was submitted for approval by the Queensland Water Commission in July 2012 (QWC, 2012b) and approved with conditions relating to monitoring and prevention and mitigation of impacts on springs. The report takes effect on 1 December 2012. It details an integrated regional water monitoring network to collect data on water levels and basic water quality in the Surat Cumulative Management Area, on an ongoing basis.

In NSW, statutory Water Sharing Plans provide a regional scale water assessment for groundwater and surface water, providing assessments of sustainable use limits, setting rules for the sharing of the resource between consumptive users and the environment, and management of water between and within discrete management zones. Projects in NSW are required to account for water taken from all water sources, and hold water licences within this framework

The Australian Government has announced that it will conduct bioregional assessments in six priority areas:

- Queensland/South Australia - Lake Eyre Basin, which is underlain by the Galilee, Cooper and Pedirka coal bearing basins
- New South Wales and Queensland - Northern Inland Catchments, incorporating the Namoi, Border Rivers-Gwydir, Maranoa-Balonne and Macquarie-Castlereagh coal bearing basins. This area is underlain by the Gunnedah and Surat basins
- New South Wales - Northern Sydney Basin and the Gloucester Basin, encompassing the Hunter Central Rivers and Hawkesbury-Nepean natural resource management regions
- New South Wales - Southern Sydney Basin, encompassing the Southern Rivers, Sydney Metro and Hawkesbury-Nepean natural resource management regions
- Queensland - Clarence-Moreton Basin, encompassing the South East Queensland and Northern Rivers natural resource management regions
- Victoria - the Gippsland Lakes region.

The selection of these regions was based on an understanding of a number of important factors, including the extent of the current level of exploration activity for CSG and the number of current and potential CSG and coal-mining developments in these regions; areas where there is a high level of uncertainty and lack of information and data to assess and understand the potential impacts and cumulative impacts of CSG and coal-mining developments; and the presence of water assets of concern to the Australian Government.

The bioregional assessments are a scientific analysis of the ecology, hydrology and geology of an area. Their purpose is to assess the potential risks to water resources as a result of CSG

and/or large coal mining development. They will be conducted by the Commonwealth's scientific agencies with input from natural resource management bodies and others.

In July 2010, the Australian Government and industry commissioned the Namoi Catchment Water Study (Schlumberger Water Services Australia 2012). The study collated and analysed data, and developed an integrated suite of models to assess the nature and extent of potential effects of coal and CSG developments on the water resources of the Namoi catchment area.

The study found that at current levels of resource development, extensive regional-scale impacts on water resources are unlikely. The water resources at risk were more likely to be in a small number of local areas, in places with numerous developments in close proximity, rather than regional in scale. The study stressed that the model developed was only suitable for regional-scale analysis and local scale effects would need to be considered on a project by project basis. It was noted that identifying impacts to groundwater quality and levels is a highly site-specific exercise due to diverse geological formations and climatic characteristics.

These findings highlight the importance of project-specific detailed investigations, supplemented by comprehensive monitoring and appropriate operational management. The study outlines potential mitigation options for groundwater and surface water flow levels, and suggests that more monitoring is required to enable more accurate analysis of hydraulic connections between water systems and to examine potential impacts to water quality.

The regional-scale assessments mentioned above are focused primarily where there is, or where there may potentially be, CSG development activity in the future. It is reasonable to expect that equivalent assessments will be undertaken in additional regions and jurisdictions in Australia as new resources are identified or where other forms of land use put increased pressure on water resources in any given region.

#### Accounting for and managing produced water

A water resource plan is normally supported by technical analysis that defines the size of the total consumptive pool of water available to be allocated to the various current and potential users and uses in a plan area. However, not all CSG development is occurring in water resource systems where the size of the total consumptive water pool has been determined.

Water extraction during CSG development could nevertheless impact on water security for other licensed users or the environment. If there are inter-aquifer connections with coal seams, surrounding ground water is likely to be affected through pressure reductions or falling underground water levels.

Modelling in the Surat Basin has shown water drawdown in aquifers above and below the coal measures. The Underground Water Impact Report for the Surat Cumulative Management Area indicates that the average estimated net loss from the Condamine Alluvium to the Walloon Coal Measures is expected to be around 1100 megalitres (ML) per year over the next 100 years. This compares with current water extraction by CSG producers of approximately 18 000 ML per year, total predicted extraction by petroleum tenure holders over the life of the industry of approximately 95 000 ML of water per year, and current water extraction by non-petroleum and gas users in the cumulative management area of approximately 215 000 ML per year (QWC, 2012b).

Depressurisation as a result of CSG dewatering may cause the total water extraction from a plan area to exceed the total consumptive water pool limit for a period, and therefore be deemed unsustainable. However, it can be argued that the period of unsustainable extraction is finite. Given the variability in natural systems, an argument could also be mounted that the impacts of CSG development could be managed adaptively by requiring a range of 'make-good' arrangements as part of the approval conditions, and ensuring that the key values of the water resource system are maintained through water level and water quality triggers associated with the key assets. Such an approach is being implemented in Queensland and is discussed below.

In practice, different approaches to the management of produced water operate in Australia although CSG is currently only produced in Queensland and New South Wales. There are moves in New South Wales, Victoria and South Australia to ensure that the extraction of water during petroleum operations is incorporated into water resource planning mechanisms, often by licensing the use of water through the allocation of water entitlements within a planning regime to ensure the sustainable management of Australia's water resources. Conversely, Queensland applies an adaptive management approach where defined trigger thresholds are used to initiate make-good agreements for existing users and strategies to prevent or minimise impacts on groundwater dependent ecosystems.

Incorporating water in planning mechanisms through a water licence is the preferred approach under the National Water Initiative, to managing water within extractive industries. However, there are complications to the universal application of this policy approach (see Clause 34 of the NWI).

In some circumstances states may determine that water extracted as a result of CSG production should be excluded from the water entitlement framework on the rationale that the volume of water produced in CSG operations is variable and unpredictable over time and variable between gas wells. If water access entitlements are not issued, the volumes of produced water should be modelled prior to approval, and monitored and reported in a transparent accounting framework to inform water planning and avoid unintended third party impacts.

### ***Queensland approach***

The Queensland policy on produced water is outlined in its *Coal Seam Gas Water Management Policy 2012*. The Policy provides two priorities for managing produced water.

- Priority 1 – CSG water is used for a purpose that is beneficial to one or more of the following: the environment, existing or new water users, and existing or new water-dependent industries.
- Priority 2 – After feasible beneficial use options have been considered, treating and disposing CSG water in a way that firstly avoids, and then minimises and mitigates, impacts on environmental values.

This policy focuses on the management and use of CSG water under the EP Act, and does not vary the requirements of the Water Act, such as 'making good' any relevant impacts that may result from a CSG operation on bores. However, measures under the Water Act may require the provision of water to mitigate impacts. CSG operators should consider the feasibility of using CSG water to meet those obligations.



The treatment of CSG water using desalination technologies results in brine and, ultimately, salt residues that must be appropriately managed. The concentration and composition of salts depends on the characteristics of the CSG water and the treatment process.

In resolving the management of brine and salt as part of the management of CSG water, operators must demonstrate that priority 1, outlined below, has been fully considered and determined not to be feasible prior to considering priority 2.

- Priority 1 – Brine or salt residues are treated to create useable products wherever feasible.
- Priority 2 – After assessing the feasibility of treating the brine or solid salt residues to create useable and saleable products, disposing of the brine and salt residues in accordance with strict standards that protect the environment.

Under the Petroleum and Gas (Production and Safety) Act 2004 (P&G Act), in Queensland tenure holders have the right to take or interfere with underground water and to use the water for carrying out authorised activities for the tenure. Although under the P&G Act CSG companies have the right to extract groundwater in the process of producing CSG, stringent conditions are imposed to ensure that the impacts resulting from the extraction are minimised. These conditions may include, for example, requirements to mitigate any impacts on water bore owners resulting from CSG activities through make-good and other adaptive management strategies to minimise impacts on groundwater resources.

The volume of water produced in CSG operations is variable and unpredictable over time, and also variable between gas wells. In general, the level of water production will unavoidably diminish over time. At present, the Queensland Government considers that the uncertainty and unreliability of production makes it unsuitable for the purposes of 'water access entitlements'.

The Queensland Government requires the measurement and reporting of volumes of produced water and it guides the use of produced water through the CSG Water Management Policy 2012. The purpose of the policy is to encourage the beneficial use of CSG water in a way that protects the environment and maximises its productive use as a valuable resource (QLD DEHP, 2012b).

Queensland requires transparent accounting of groundwater extraction by the CSG industry. This is achieved through an adaptive management framework using management/mitigation strategies with a risk based approach. The adaptive management framework is detailed in Chapter 3 of the Water Act 2000 (Qld) and includes the designation of cumulative management areas and requirements for the preparation of underground water impact reports. The framework also includes make-good agreements with land owners and a dispute resolution process and establishes the Office of Groundwater Impact Assessment to manage the cumulative impacts of CSG activities.

### ***New South Wales approach***

Water extraction associated with CSG development in New South Wales is regulated differently than in Queensland. The New South Wales Government has in place an Aquifer Interference Policy (NSW DPI, 2012), which explains the regulatory requirements for aquifer interference activities under the *Water Act 1912* (NSW), the *Water Management Act 2000* (NSW) and other relevant legislative frameworks. Examples of aquifer interference activities include mining, CSG extraction, injection of water, and commercial, industrial, agricultural and residential activities that intercept the water table or interfere with aquifers.

The NSW policy provides a mechanism for equitable water sharing among different types of water users and ensures that water taken by aquifer interference activities is licensed and accounted for in the water budget and water-sharing arrangements.

Since June 2011, new mining and petroleum exploration activities that take more than 3 ML per year from an aquifer are required to hold a water access licence. As part of the water access licence, the potential impacts of the proposed water extraction are taken into account prior to approval.

Mining and CSG development proposals on strategic agricultural land also need to be assessed by a Gateway Panel before they can proceed to a development application. Part of this assessment requires consideration of the impacts of the proposal on aquifers against the Aquifer Interference Policy.

### *Assessing alternative approaches*

Achieving the objectives of the National Water Initiative will require cooperation between governments to ensure that the long-term effects of groundwater extraction for CSG production do not adversely affect water security for other users and the environment. This will require quantification of the cumulative effects on connected water systems and an awareness of the long timeframes involved.

The licensing and metering of groundwater is not consistently applied between jurisdictions. Although the National Water Initiative recognises that special circumstances may apply to the minerals and petroleum sectors, the National Water Commission noted in its third biennial assessment of the NWI that:

*The mining and petroleum sectors are subject to specific regulatory structures, but those structures are often not well aligned with state water management frameworks, which can result in higher compliance costs and suboptimal regulation. Given the importance of both good water management and the minerals and extractive sectors for Australia's future, there is a need for greater coordination and alignment of regulatory settings'*

Another important consideration in this context is the Great Artesian Basin Coordinating Committee's position on CSG in relation to the \$450 million investment by the Australian Government and landholders under the Great Artesian Basin Sustainability Initiative (GABSI) (Queensland Government, 2011).

The committee is concerned that GABSI investments will have little benefit if extractive industry development in the Great Artesian Basin, in particular CSG, leads to medium and long-term reductions in artesian pressure in aquifers (GABCC, 2012). However, the recent *Great Artesian Basin Water Resource Assessment* undertaken by the CSIRO found that pressure gains generally across the whole basin due to completion of the GABSI program, would be significantly greater than any pressure loss due to currently planned CSG developments. In any event, it will be important to ensure that there is consistency between different strategies, in particular the GABSI investment and CSG development.

However, while jurisdictional approaches may be derived from different regulatory rationales, it could be argued that they have the same strategic intent in achieving protection of the environment while safeguarding the rights of water users. Jurisdictions employ a variety of processes and licensing arrangements for the management and handling of produced water.

The objective of the NWI is to 'provide greater certainty for investment and the environment, and underpin the capacity of Australia's water management regimes to deal with change responsively and fairly' (COAG, 2004b). Noting this objective, there may be benefits from pursuing greater coordination between the accounting and management of co-produced water by CSG production and state water management frameworks.

In addition, achieving sustainable outcomes will be dependent on how water accounting arrangements interact with, and are complemented by, other aspects of CSG water policies, including aquifer recharge, make-good arrangements, adaptive management and the monitoring regime.

The National Water Commission acknowledges that there is no universal solution to co-produced water management and that available options must be considered for each project. As the economic, social and environmental contexts vary widely, these need to be taken into account when preparing and evaluating projects (NWC 2011).

### Maximising re-use of extracted water

In Queensland, the CSG Water Management Policy (QLD DEHP, 2012b) encourages the beneficial use of recycled CSG water as a preferred management option. Beneficial uses of treated CSG water identified include substitution for water for existing irrigation schemes, new irrigation use, with a focus on sustainable irrigation projects, livestock watering and release to the environment in a manner that improves local environmental values.

In New South Wales, the Aquifer Interference Policy outlines preferred disposal options to include reinjection to an aquifer, discharge to a river, on-selling to a nearby industry, agricultural development or potable water supply. Any option requires treatment of CSG water to an appropriate water quality standard to have minimal impact on any proposed receiving land and waters. Consideration must also be given to pollution issues, which are regulated under the *Protection of the Environment Operations Act 1997 (NSW)* (NSW DPI, 2012).

In a change from past practices, jurisdictions with the most significant CSG developments have moved to either completely ban or prevent the use of evaporation dams unless there is no feasible alternative. In addition to removing the risk of spills or uncontrolled discharges in the event of flooding, the policy is directed toward maximising the potential beneficial use of produced water and minimising the impact of CSG activities on other water users in the short and long term.

In other jurisdictions and in different circumstances, evaporation dams are permitted as an appropriate disposal mechanism for produced water. This is generally the case where the remote location and lack of other users of the water resources mean the cost and environmental impact of beneficial use cannot be justified.

If evaporation dams are used, they should be subject to rigorous risk assessment requirements and technical specifications to ensure they are properly lined and sealed and that there is safe and appropriate disposal of all leftover waste and residues and that overflows do not occur.

Addressing aquifer depletion, water banking, environmental benefit or treated water disposal are all potential reasons for produced water reinjection. Managed aquifer recharge is a process whereby a water source, such treated produced water in the case of CSG projects, is used to recharge an aquifer with water under controlled conditions. In this process the aquifer is used to store surplus water for later use or for environmental benefit.

The *Australian Guidelines for Water Recycling: Managing Health and Environmental Risks (Managed Aquifer Recharge) (2009)* provide a sound and consistent basis for protecting human health and the environment at managed aquifer recharge operations in all of Australia's states and territories. The guidelines outline a clear process which involves establishing the environmental principles which need to be protected, a risk assessment process and compliance monitoring. The guidelines should be applied where produced water (either treated or untreated) is to be re-injected in the circumstances described above.

By contrast, the use of reinjection as a means of disposal of contaminated water (such as brine) into suitable underground systems (potentially deep saline aquifers), where there are no impacts or implications for other water users or the environment and it is not intended the water be recovered subsequently, is an issue which has not been widely addressed in Australia. There may be information that is applicable from the experience of the offshore petroleum sector or from current research on the sequestration of carbon dioxide in similar systems.

The Queensland Government has identified a range of options for salt and brine waste management in the CSG Water Management Policy (QLD DEHP, 2012b). The first priority is treatment of brine or salt residues to create useable products where feasible. If this is not feasible then brine and salt residues should be disposed of in accordance with strict standards that protect the environment. Options could include the injection of brine underground into suitable geological formations and the disposal of solid salts in regulated waste facilities.

Australian governments should evaluate international leading practices for application in Australia, such as that applied in the United States, where there are programs to regulate the construction, operation, permitting and closure of injection wells that place fluids underground for storage or disposal. The United States Underground Injection Control Program provides a framework for the disposal of hazardous wastes and brine by reinjection beneath the lowermost underground source of drinking water. This could provide a starting point for the development of leading practice in Australia.

Overseas experience shows that injection of water may result in induced seismicity, particularly where injecting into non-hydrated formations. The likelihood of causing seismic activity increases where injection pressures exceed original geological formation pressure. These risks need to be managed through ensuring a sound geomechanical understanding prior to undertaking this activity.

In Queensland, re-injection is being used to recharge groundwater aquifers (the piloting of reinjection into aquifers was a condition placed on the approval of the CSG field component LNG projects in Queensland). These trials have so far been carried out without causing any seismic activity. Re-injection is the process where water is injected into an aquifer in order to re-charge water levels which have been reduced and the risks of seismicity with these activities is considered far lower.



## CHAPTER 5: HYDRAULIC FRACTURING

### KEY POINTS

- ❖ Hydraulic fracturing has been widely used in Australia for more than 40 years to increase the rate and amount of oil and gas extracted from reservoirs. The process of hydraulic fracturing is applied to a minority of CSG operations in Australia.
- ❖ A sound understanding of the geology, hydrology, hydrogeology and geomechanics is essential to plan the fracturing process and ensure fracture stimulation activities are conducted in a safe manner that protects communities, the environment and water resources. Baseline and ongoing monitoring underpin evidence-based decision-making which ensures that actions taken by regulators and CSG operators on hydraulic fracturing are accountable and enduring.
- ❖ Effective monitoring of hydraulic fracturing activities allows for prompt identification and mitigation of any health, safety or environmental risks. Wells should be monitored on an ongoing basis to ensure integrity of the well and well equipment. Monitoring and reporting improves transparency and understanding of potential impacts of hydraulic fracturing and provides evidence to clearly demonstrate CSG operators' compliance with regulation.

### KEY FINDING

- 5.1 Leading practice in hydraulic fracturing is underpinned by regulatory regimes that manage well integrity, water management and monitoring and chemical use. Implementing leading practices in these areas is critical to governments effectively managing the impacts associated with the process of hydraulic fracturing.

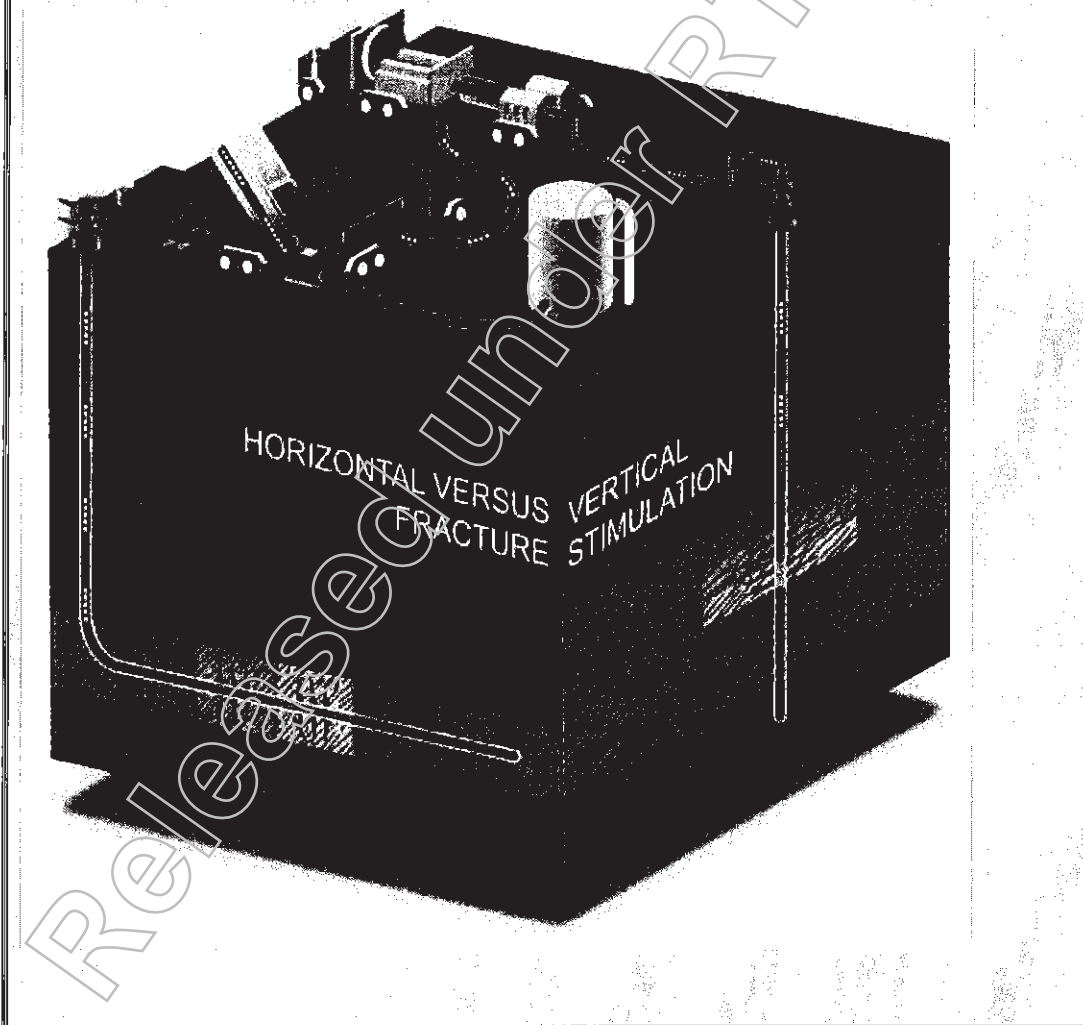
## WHAT IS HYDRAULIC FRACTURING?

Hydraulic fracturing is also known as fracture stimulation, fracking or fracking. The term hydraulic fracturing has been used consistently throughout this report.

Hydraulic fracturing is the process through which fractures are produced in geological formations. Most commonly, a fluid made up of water, sand and additives is injected under high pressure through a perforated cased well into a geological formation. The pressure caused by the fluid injection under pressure creates fractures in the coal seam where the well is perforated (CSIRO, 2012a).

The process can be used in a number of situations including petroleum (including CSG) recovery, geothermal energy production or water production to improve flows of hydrocarbons, steam or water to a well bore. Hydraulic fracturing has been widely used in Australia for more than 40 years to increase the rate and total amount of oil and gas extracted from reservoirs. The majority of activity has been in the onshore oil and gas fields in South Australia and Queensland.

Figure 5.1: Schematic diagram of the hydraulic fracturing process



Source: JuneWarren-Nickles Energy Group

In the Australian CSG industry, hydraulic fracturing is applied to a minority of CSG wells. It may be used if the coal seam's natural permeability is insufficient to deliver the required gas flow rates to the well. Since 2000, around 8 per cent of CSG wells in Queensland have been hydraulically fractured. The industry estimates that between 10 and 40 per cent of wells yet to be drilled for current CSG developments across Australia may need some method of flow enhancement, including hydraulic fracturing (QLD DERM, 2011a).

For a large vertical CSG well treatment, a fracture might typically extend to a distance between 20 and 250 metres from the well. The fractures grow slowly; for example the initial average velocity may be less than 10 metres per minute and slow to less than 1 metre per minute at the end of the treatment (CSIRO, 2012b). The 'proppant' in the hydraulic fracturing fluid acts to keep the fracture open after injection stops, and forms a conductive channel in the coal through which the water and gas can travel back to the well. After the fracturing is complete, the majority hydraulic fracturing fluid is brought back to the surface over time and treated before being reused or disposed of.

Well integrity standards include arrangements for hydraulic fracturing and are the key mechanism for managing potential impacts. The impacts that arise generally relate to potential aquifer interconnectivity, intersection of induced fractures with existing faults/fractures and/or existing wells, and the potential for chemical contamination. This includes a requirement for baseline and ongoing monitoring to understand chemicals in situ or volatile organic compounds which can be mobilised through well operations, in particular through hydraulic fracturing.

A key area of concern has been the risk of damage to aquifers through the propagation of fractures into these systems. This risk can be managed by understanding the geology and by controlling the fracture pressures applied to the targeted formation. In certain circumstances (such as proximity to sensitive or high-value aquifers), hydraulic fracturing may need to be restricted or prohibited if, in the regulators opinion, the risk of vertical propagation of fractures cannot be addressed. In these circumstances the use of chemical additives would have the potential to contaminate these aquifers. This issue is addressed in Chapter 6.

In summary, the key impact associated with hydraulic fracturing has been identified and is described in Table 5.1.

**Table 5.1: Key potential impact associated with hydraulic fracturing**

No.	Issue	Impact and receptors
10	Over pressurisation during hydraulic fracturing operations leading to excessive propagation of fractures	<ul style="list-style-type: none"> <li>Contamination of shallow and deep aquifers as a result of induced interconnectivity or connection with existing fractures/faults, or intersection with existing wells.</li> <li>Changed hydraulic pressures allowing migration of hydraulic fracturing fluids, methane and geogenic agents out of targeted coal seam gas beds into adjacent aquifers</li> </ul>

## Leading practices

(Relates to leading practices 1, 2, 3, 4, 5, 12, 13, 14, 15, 16, 17 and 18)

Well integrity is fundamental to reducing the contamination risks associated with hydraulic fracturing. Leading practice in well integrity is discussed in Chapter 3. Additional leading practices in hydraulic fracturing are outlined below.

### **12: Require a geological assessment as part of well development and hydraulic fracturing planning processes**

A sound understanding of the existing geology, hydrology, and hydrogeology is essential to plan the fracturing process and ensure fracture stimulation activities are conducted in a safe manner that protects communities, the environment and water resources. This approach underpins the pursuit of evidence-based land use decision-making, informing risk-based approaches that make transparent the consequences of different land uses.

CSG operators need to be aware of the location of aquifers, as well as faults and fractures (including micro fractures) that could give rise to interconnection pathways between coal seams and surrounding aquifers. Knowledge of the location and thickness of formations which confine aquifers (aquitards) and their proximity to coal seams will also assist in determining the maximum fracture pressures that can be used safely.

A wide range of hydrogeological modelling and geophysical techniques are used to characterise the separation of coal seams from surrounding aquifers. These include surveying, modelling and imaging (CSIRO, 2012b). A similarly wide range of geological and geomechanical measurements are made to understand the properties of the coal seam and the surrounding geology. This enables each hydraulic fracturing operation to be designed so that the fracture is contained within the coal seam. Monitoring methods also provide quality control on fracture design and fracture growth, to ensure the fractures extend only in the target coal seams.

The real-time data collected in previous hydraulic fractures in similar geologies should be used to inform the hydraulic fracturing planning process. However, while this data can be used to refine numerical models and plan future hydraulic fracturing operations, there remains some uncertainty in fracture growth due to data limits and the exact understanding of surrounding geology.

The American Petroleum Institute's guidance document, *Hydraulic Fracturing Operations – Well Construction and Integrity Guidelines*, notes that once the location for a well has been selected and before it is drilled, water samples from any source of water – rivers, creeks, lakes, ponds, and water wells – located nearby should be obtained and tested in accordance with applicable regulatory requirements (API, 2009). If testing was not done prior to drilling, it should be done prior to hydraulically fracturing. The area of sampling should be based on the anticipated fracture length plus a safety factor. This procedure will establish the baseline conditions in the surface water and groundwater. It is noted that an accurate baseline should be developed prior to the commencement of CSG activities but certainly prior to CSG production drilling. This is important to ensure that the baseline data reflects any seasonal variations in sampling parameters. If subsequent testing reveals changes, this baseline data will assist the operator and regulators to determine the potential cause.

While the experience in shale gas is not directly analogous to CSG, the shale gas industry has demonstrated that pre-hydraulic fracturing tests (mini-frac) can be used to assist in the design of full fracture stimulations in some site-specific conditions. A mini-frac test uses a



smaller volume of hydraulic fracturing fluid at lower pressures and shorter duration than full fracture stimulation.

In the CSG sector, where fracture stimulation is a much less energy intensive process than the shale gas sector, it has less applicability but may be used in areas where geological and hydrological understanding requires refinement. If applied, mini-frac testing should be coupled with real-time monitoring of water bores to allow operators to identify any potential interconnectivity between the hydrogeological layers (see leading practice 13).

**13: Require process monitoring and quality control during hydraulic fracturing activity**

Effective monitoring of hydraulic fracturing activities allows for prompt identification and mitigation of any health, safety or environmental risks.

Consistent with the American Petroleum Institute guidelines (API, 2009), there are certain monitoring parameters that should be observed in all hydraulic fracture treatments, and others that should be employed from time to time based on site-specific needs. Monitoring during hydraulic fracturing operations should include parameter monitoring, pressure monitoring and seismic monitoring.

Hydraulic fracturing activities are designed so the propagated fractures remain below the upper confining formation. The dimensions, extent, and geometry of the propagated fractures are controlled by pump rate, pressure, volume, and viscosity of the fracturing fluid. Fracture monitoring techniques provide confirmation of fracturing coverage, and allow the refinement of the models and enhancements to procedures for future operations.

Pressure levels throughout the hydraulic fracturing process should be monitored so that any unexplained deviation from the fracturing design can be immediately detected and analysed before operations continue. Adjustments based on real-time data obtained from process monitoring can be made and monitored in real time. Unexpected or unusual pressure measurements during the hydraulic fracturing process could indicate a problem such as a leak in the casing string, and if this is the case, it is possible to shut down the fracturing process immediately.

The extent of fracturing can be measured at the time of hydraulic fracturing through well logging and remote monitoring, such as by microseismic techniques. Tiltmeters can be used to measure the fracture orientation and volume. Offset instrumented wells are sometimes drilled to monitor fracture growth and may be used later during production to monitor seam pore pressure.

To assist monitoring further, chemical tracers can be added to fracturing fluid (Royal Society, 2012). The performance of the fracturing process can be inferred from the concentration of specific tracers combined with the recovery time and volumes of flowback water. The dilution of tracers can improve understanding of fracture fluid loss and flowback efficiency. Detection of tracers can confirm whether proppant is placed as intended and identify leakage points.

Wells should be monitored on an ongoing basis to ensure integrity of the well and well equipment. A fracturing completion report should be compiled and submitted to the regulator.

## Analysis

The concerns in Australia over the practice of hydraulic fracturing relate principally to chemical use and the possible contamination of aquifers, and the potential to create connectivity between naturally disconnected geological formations (for example coal seams and aquifers). Regulatory practices discussed in the chapters on well integrity, water management and monitoring, and chemical use (see chapters 3, 4 and 6) are directly relevant to Australian practice in hydraulic fracturing.

## Geological and hydrogeological assessments

The regulatory framework for managing environmental assessment, monitoring and compliance for hydraulic fracturing activities can be found within existing environmental, petroleum, water and work health and safety legislation in jurisdictions.

Petroleum regulatory arrangements cover all aspects of well design, construction, management, operation and abandonment. Activities must be carried out with due care and in accordance with good industry practice. Regulations generally make reference to approved codes of practice relevant to the construction of petroleum wells.

Current legislation provides a mechanism to manage the process and impacts of hydraulic fracturing. For example, risk assessments are required to include a mass balance determining the concentrations and absolute masses of chemicals that will be left in situ following drilling, completion and stimulation operations. They must include the results of any fluid monitoring undertaken in the course of previous drilling, completion and stimulation operations. If the results of the risk assessment indicate that the site-specific conditions are deemed to be too high risk for hydraulic fracturing, then the activity will not proceed.

Across jurisdictions geological assessments are required to determine the environmental impact of hydraulic fracturing. In some jurisdictions, such as Western Australia and South Australia, more specific geological prognosis requirements exist in various schedules and policies. This may include well objectives and project definitions accompanied by a time or depth map of near target horizon(s) and seismic sections where possible.

## Monitoring and quality control during hydraulic fracturing

Jurisdictions use a range of legislation, codes and industry standards to ensure they provide a consistent and transparent exploration and production management regime. These are coupled with environmental standards, monitoring and enforcement, which ensure that industry complies with their obligations and meets community expectations. This includes comprehensive monitoring and reporting to relevant regulators.

For example, the *Code of Practice for Constructing and Abandoning Coal Seam Wells* in Queensland requires CSG operators to carry out a risk assessment to identify the risks that may occur during well construction, operation and abandonment, which includes hydraulic fracturing.

Prior to obtaining an authorisation to undertake hydraulic fracturing activities, the Queensland Government requires operators to:

- provide details of their proposed hydraulic fracturing operations including the location of wells;
- detail the chemicals to be used and the toxicity of ingredients and mixtures; and
- develop a risk assessment that must be carried out for any well prior to it being hydraulically fractured to ensure that the activity is managed to prevent environmental harm.

This information is used by the government to impose strict environmental conditions on approvals. This may include requirements for CSG operators to:

- drain and rehabilitate any ponds that were designed to evaporate CSG water and hydraulic fracturing fluid over the long term;
- undertake long-term monitoring of water produced from wells that have been hydraulically fractured;
- have comprehensive contingency and emergency response planning for incidents related to water quality; and
- monitor groundwater and landholders' bores prior to and following hydraulic fracturing activities.

CSG operators are legally required to notify the regulator of any environmental incident or if a breach of condition occurs.

In addition, regulators closely monitor hydraulic fracturing activities through a proactive compliance program including:

- attendance at hydraulic fracturing activities;
- auditing hydraulic fracturing operations;
- desktop audits of the information submitted by CSG operators; and
- independent monitoring of water bores in proximity to CSG operations.

CSG operators must also notify landholders in writing at least 10 business days before undertaking hydraulic fracturing activities on a property and again within 10 business days of completing those activities. These written notices must list the anticipated and actual composition of hydraulic fracturing fluids used, including chemicals and volumes. This ensures that landholders are fully informed about the type and extent of hydraulic fracturing activities being undertaken on their land.

In addition, the *NSW Code of Practice for CSG Fracture Stimulation Activities* outlines mandatory requirements and leading practice associated with all aspects of hydraulic fracturing.

The design of the fracturing activity must be described in a fracture stimulation management plan. This description must incorporate:

- characterisation of geological formations, including the identification of rock types and conditions, aquifers and hydrocarbon-bearing zones;
- definition of distances to these aquifers from the target coal beds;
- identification of the characteristics of intervening strata, including porosity/permeability and the extent of natural fracturing;
- determination of geological stress fields and areas of faulting;
- determination of maximum pressures to be used for fracture stimulation, based on the characteristics of the surrounding geology;
- modelling of the likely fracture propagation field, including extent and orientation; and
- discussion of any potential for the fracture propagation field to exceed the modelling described in the previous dot point.

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## CHAPTER 6: CHEMICAL USE

### KEY POINTS

- ❖ The responsible management and use of chemicals in CSG operations and potential human health and environmental impacts are key concerns for many communities and a high priority for governments and industry.
- ❖ Commonwealth, state and territory and international legislation is in place to control and regulate chemical use in CSG operations. Legislation, regulation, standards and codes of practice cover all aspects of the industry including workplace and public health and safety, environmental protection, transport, handling, storage and disposal of chemicals.
- ❖ Industry has developed and continues to research environmentally benign chemicals and formulations for use in CSG operations. Governments are working with industry to better understand potential impacts on human health and the environment through the national chemical assessment process.
- ❖ Baseline and ongoing monitoring is a key component of effective management of risks associated with chemicals use.

### KEY FINDINGS

- 6.1 The use of chemicals in CSG operations should be minimised to reduce risks to human health and the environment. The use of environmentally benign chemicals and compounds is seen as a key leading practice.
- 6.2 Community confidence and transparency in the regulation of chemicals used in the CSG industry could be improved through targeted information and education campaigns on the role and function of chemical regulatory agencies.
- 6.3 Jurisdictions should continue to work towards best practice legislation which delivers chemical management outcomes that are either equivalent to or exceed the model work health and safety legislation agreed by COAG.
- 6.4 International collaboration and information sharing are important improving leading practice approaches to chemical use and managing potential impacts in the industry.
- 6.5 Australian governments should consider initiating a project on the cumulative effects of chemicals to identify potential human health and environmental risks.

## Chemical use in CSG operations

The petroleum industry uses chemicals in many different ways in its operations. Aspects of CSG operations requiring chemical use are summarised below.

**Drilling operations** – Drilling fluids (also known as drilling muds) are used during the drilling of CSG wells to reduce friction, stabilise formations, control pressures in the well bore and return drill cuttings to the surface. Drilling fluids are most often water-based with clays and a range of additives to control and minimise fluid loss, density and viscosity (QLD DEEDI, 2011b).

**Hydraulic fracturing operations** – Hydraulic fracturing fluids are typically composed of water with a number of additives for specific purposes. These include ‘proppant’ (usually sands) to hold open cracks and fractures in the target formation and provide an open pathway for gas and water to access the well. Other chemical additives, which typically make up 0.1 to 2 per cent of the hydraulic fracturing fluid composition, vary depending on the application, the nature of the coal seam, the CSG operator and, in some cases, the legislation and regulations applying to the area in which the well is being drilled.

Some commonly-used chemical additives and their uses in hydraulic fracturing fluids include:

- gelling agents (commonly guar gum), cross-linkers, and flocculants – additives used to increase the viscosity of the fracturing fluid as it is pumped under pressure into the crack and joints in the coal, to allow more proppant to be carried into fractures
- breakers - which dissolve the hydraulic fracturing gels such as guar gum so that the fractures can transmit water and gas to the well;
- friction reducers and clay controllers - chemicals used to reduce any friction between the fracturing fluid and the bore casing and to control any swelling in clay;
- bactericides - such as sodium hypochlorite and sodium hydroxide, which are used to control the introduction of outside bacteria to the coal seam which may restrict gas flow to the well;
- surfactants - such as ethanol and the cleaning agent orange oil, which are used to increase fluid recovery from the fracture; and
- scale and corrosion inhibitors and iron controllers – to prevent the build of scale and rust in the bore;
- acids and alkalis - acids injected to dissolve calcite from within the natural cracks and joints in the coal before the fracturing fluids are injected and to balance the acidity of the hydraulic fracturing fluid; and
- monitoring isotopes – isotopes occasionally used to monitor the growth of the fractures in the coal seam.

**Water management** – In addition to the chemicals used for the exploration and production of CSG from the subsurface, management and disposal methods for produced water and brine may entail further chemical treatments. This is discussed further in Chapter 4.

**General operations** – Other chemicals needed to support site CSG operations include fuels and oils for machine and plant operations, transport operations, building services and construction purposes.

The use of chemicals in these applications could present potential human health and/or environmental risks unless managed appropriately. The potential risks associated with chemical use in CSG operations are summarised in Table 6.1.

Table 6.1: Key potential issues associated with chemical use

No.	Potential Issues	Possible Impacts
11	Chemical use in well drilling and hydraulic fracturing operations	<ul style="list-style-type: none"> <li>Contamination of aquifers by chemicals (drilling fluids, drilling mud) used in drilling operations and hydraulic fracturing</li> <li>Contamination of aquifers caused by an alteration of water chemistry that mobilises naturally occurring (geogenic) compounds from coal seam beds and other rock strata</li> </ul>
12	Improper transport, handling, use and storage of chemicals used in drilling, hydraulic fracturing, water treatment, disposal and other operations; including from accidents, spills and extreme events (e.g. fire, flood)	<ul style="list-style-type: none"> <li>Contamination of the surrounding environment, including surface water, groundwater and land</li> <li>Chemical effects on human, animal, environmental and agricultural health</li> </ul>

### Leading practices

(Relates to leading practices 1, 2, 3, 4, 5, 14, 15, 16, 17 and 18)

Leading practices for chemical management are in use in different Australian and international jurisdictions. The leading practices specific to managing and mitigating chemical risks (14, 15, 16, 17 and 18) are discussed below.

#### **14: Handle, manage, store and transport chemicals in accordance with Australian legislation, codes and standards**

A robust framework of legislation and standards ensures that the potential risks associated with toxic chemicals and dangerous goods are suitably addressed. The safe handling, management, storage and transport of chemicals are not unique to the CSG industry and have been required across an array of industries for several decades.

#### **15: Minimise chemical use and use environmentally benign alternatives**

The use of chemicals in all aspects of CSG operations should be minimised where possible to reduce risks to human health and contamination of the surrounding environment including water resources.

The geology, geohydrology and hydrology in the area of a drilling program should be assessed as part of the well development plan (Leading Practice 12 requires geological assessments as part of well development). A sound geological and hydrological understanding will inform the selection process for drilling fluid type and the amount of fluid likely to be required for drilling wells in that area.

More benign chemical additives are being investigated for use in hydraulic fracturing operations and these should be considered for all CSG activities. The use of lower toxicity

and biodegradable drilling fluid additives, or switching to water-only drilling in sensitive formations such as aquifers, should be applied wherever feasible and safe.

**16: Minimise the time between hydraulic fracturing operations and fluid flow-back, and maximise the rate of recovery of fracturing fluids**

On completion of hydraulic fracturing, fracturing fluids should be recovered from the well as soon as practicable. Recovery rates should be maximised to reduce the risk of chemicals used in the hydraulic fracturing operations contaminating groundwater resources.

After a coal seam has been hydraulically fractured, pressure in the geological formation causes the injected fracturing fluids to flow back to low pressure zones around the well bore and flow back up the well to the surface for recovery, storage, treatment, disposal or re-use. Recovery of hydraulic fracturing fluid should be maximised as far as reasonably practicable, however recovery rates will depend on the area's geology and hydrogeology. The recovered water should be stored in appropriately designed, constructed and lined dams or storage containers before being either treated and recycled for beneficial use, or disposed of at a regulated waste disposal facility (see Leading Practice 11).

Experience in hydraulic fracturing in Australia and the United States has demonstrated that minimising the time between closing in the well after pumping in the fracturing fluids and allowing flow-back also minimises the likelihood of the fracturing fluids migrating out of the gas bearing layer (Green et al. 2012).

**17: Increase transparency in chemical assessment processes and require full disclosure of chemicals used in CSG activities by the operator**

The regulatory framework provides for the rigorous assessment of chemicals used in CSG activities and ensures the protection of human health and the environment. It also provides for an audit and compliance process by regulators to ensure compliance with legislative requirements. Information on these assessment processes, including what operators are required to disclose to the regulator, how the regulator conducts risk assessments, and the findings of assessments, should be transparent and readily accessible to the public.

These processes should instil a level of confidence within communities and trust in the regulator that the use of chemicals in CSG activities is socially and environmentally responsible.

Full public disclosure of chemicals used in CSG activities would further increase public confidence. This needs to be weighed against any claim of commercially sensitive information or the potential erosion of intellectual property rights. In making information publicly available, a balance may be required between the level of public disclosure, and the need to protect intellectual property rights to encourage growth in research, development and innovation.

If full public disclosure is not possible, arrangements should be in place to allow full disclosure to the regulator on a confidential basis and chemical risk assessments undertaken by the regulator must still address any potential impacts on human health or the environment. The Commonwealth *Industrial Chemicals (Notification and Assessment) Act 1989* outlines how this balance is achieved.

Governments are investigating the application and deployment of a system based on or similar to the *FracFocus Chemical Disclosure Registry* operating in the US and a number of other countries. *FracFocus* is a public web-based registry managed by the Ground Water



Protection Council and the Interstate Oil and Gas Compact Commission in the US. These organisations have responsibility for conservation and environmental protection.

The site was created to provide the public access to reported chemicals used for hydraulic fracturing within their area. To help users put this information into perspective, the site also provides objective information on hydraulic fracturing, the chemicals used, and the purposes they serve and the means by which groundwater is protected. Further information on *FracFocus* is available at: [www.fracfocus.org](http://www.fracfocus.org)

Full public disclosure of chemical use is recommended as part of this leading practice. While being mindful of the need to balance public disclosure against intellectual property, disclosed information should include:

- names of the companies producing fracturing fluids and associated products;
- proprietary names (trade names) of compounds (fracturing fluid additives) being produced;
- chemical names of each additive used in each of the fluids;
- Chemical Abstract Service numbers of each of the chemical components used in each of the fluids;
- general purpose and function of each of the chemicals used;
- maximum concentration (per cent by mass) of the chemicals used; and
- any material safety data sheets for the chemicals or chemical products used.

In order to protect commercially sensitive information, these categories of information should be contained in separate groupings/lists so that specific combinations or formulas used for proprietary products cannot be determined.

**18: Undertake assessments of the combined effects of chemical mixtures, in line with Australian legislation and internationally accepted testing methodologies**

Any activity involving the use of chemicals should be informed by robust science and high-quality data, and should have appropriate risk management frameworks to attain and sustain the trust of stakeholders.

An assessment of the combined effects of chemical mixtures may be important in determining the potential human health and environmental risks arising from chemicals used in hydraulic fracturing as part of CSG operations. For example, how chemical mixes interact with existing chemicals or organic compounds already in the geology or groundwater requires an understanding and monitoring of geology and hydrogeology. The same is relevant to naturally occurring minerals and chemicals released from coal seams during the extraction process. Assessments should be conducted in accordance with internationally accepted testing methodologies.

## Analysis

Current international standards, national and state legislation, guidelines, and codes of practice for work and public health and safety and environmental protection govern the management, control, and disposal of chemicals. They provide a suitable framework for delivering leading practice for the use of chemicals in CSG operations. Consistent criteria have been established for the classification and labelling of chemicals under the United Nations' *Globally Harmonised System of Classification and Labelling of Chemicals*, which has been adopted by Safe Work Australia for the regulation of chemicals in the workplace.

The requirements for approval typically include an assessment of the potential environmental impacts resulting from the project (usually in the form of environmental assessments, environmental impact statements, or environmental impact reports). The assessment includes consideration of chemical use, storage, handling, processing, transport, and disposal. There is also a requirement for a robust risk assessment of chemical use with respect to human health, environmental contamination and groundwater protection, and description of risk mitigation controls to be implemented as part of the operation. Furthermore, jurisdictions such as Queensland, New South Wales and Western Australia also require a safety management plan as part of their approach to risk control for chemical use.

In New South Wales the Code of Practice for Fracture Stimulation Activities (September 2012) brings together key aspects of leading practice. The code requires the operator to prepare a fracture stimulation management plan for approval by the regulator. This plan must identify:

- the volumes and concentrations of chemicals to be injected as part of the fracture stimulation process and their storage and management by the operator;
- the Chemical Abstract Service registry number;
- whether chemical concentrations at the point of injection will exceed Australian and New Zealand Environment Conservation Council and Australian Drinking Water Guidelines (and if not specified in the guidelines, assess the toxic effect in accordance with OECD methodologies for testing of chemicals);
- the likelihood and consequence of uncontrolled human exposure;
- the likelihood and consequence of surface spills; and
- the likelihood and consequence of the injected chemicals affecting other aquifers or groundwater.

## Handling and management

Australia has extensive legislation, standards, and codes of practice in place regulating the management, handling, storage, classification, and labelling of hazardous materials and dangerous goods in the workplace.

In July 2008, COAG formally committed to the harmonisation of work health and safety laws by signing an *Intergovernmental Agreement for Regulatory and Operational Reform in Occupational Health and Safety*. The model legislation consists of an integrated package that includes the *Model Workplace Health and Safety Regulation 2011*, which is supported by model work health and safety regulations, model codes of practice and a national compliance and enforcement policy.

The aim of the nationally harmonised work health and safety laws is to ensure as far as reasonably practicable the highest level of health and safety protection from hazards arising

from work. It also provides certainty for businesses (in particular those operating across state borders). Specifically, the model legislation includes requirements for the safe use, storage and transport of substances (including toxic chemicals).

The Commonwealth, Queensland, New South Wales and the Northern Territory have implemented the model legislation, and Western Australia, Tasmania and South Australia are in the process of adopting the model. Minor variations may be necessary to ensure individual legislation is consistent with relevant drafting protocols and other laws and processes operating within each jurisdiction. Victoria is assessing the national model legislation and in the interim, current health and safety legislation remains in place under the *Occupational Health and Safety Act 2004 (Vic)*, the *Occupational Health and Safety Regulations 2007 (Vic)* and the *Dangerous Goods (Storage and Handling) Regulations 2012 (Vic)*.

### **Minimise chemical use and adopt benign alternatives**

Minimising chemical use is regulated in jurisdictions through environmental management processes, where the operator is required to demonstrate that the volume and concentration of chemicals is such that their impact on the environment will be as low as reasonably practicable. For example, in South Australia, minimisation of the use of chemicals is dealt with as an environmental objective in the statement of environmental objectives.

Legislative and/or policy amendments by the New South Wales, Queensland, Western Australian, Northern Territory and Victorian governments have prohibited the addition of benzene, toluene, ethylbenzene and xylene (BTEX) compounds to drilling and hydraulic fracturing fluids. Furthermore, Tasmanian policy promotes the sparing use of drilling additives and the adoption of alternative biodegradable products where available.

The petroleum services industry has responded to public concern that hydraulic fracturing fluids may contaminate water resources by using and developing more benign alternatives wherever feasible.

### **Minimise time and maximise rate of recovery in hydraulic fracturing**

Queensland has an explicit requirement to recover flow-back water to 150 per cent of the volume of introduced fracture fluids (QLD DEHP, 2011). In New South Wales, flow-back water is required to be promptly pumped from the well to maximise the recovery of fracture stimulation fluids, with recovery of fluids to continue until background water quality parameters for the target formation are reached (NSW DTI, 2012b).

## Transparency in chemical assessment processes and chemical disclosure

### *Chemical assessment processes*

The environmental management processes in a number of jurisdictions require the identification of risks, including those presented by chemical additives, as well as the determination of appropriate risk mitigation strategies. As part of this process, toxicology assessments of chemicals used in fracturing are a common requirement.

Industrial chemicals used in drilling and hydraulic fracturing in Australia are required to be listed on the *Australian Inventory of Chemical Substances (a national inventory)* which is maintained by the National Industrial Chemicals Notification and Assessment Scheme (NICNAS). All new industrial chemicals must be notified and assessed by NICNAS. The vast majority of the chemicals on the national inventory have not been assessed for human health and environmental impacts, as they were included on the inventory at the time NICNAS was established. NICNAS has not assessed any chemicals for their use in hydraulic fracturing. However, four of the chemicals commonly used in hydraulic fracturing have been assessed for other uses, such as sodium persulphate in hair bleach and agricultural chemicals such as biocides used to prevent the build-up of algae in wells.

There have been public calls for NICNAS to assess chemicals used in hydraulic fracturing, including by the Senate's Rural Affairs and Transport References Committee in its interim report on the impact of mining coal seam gas on the management of the Murray–Darling Basin (recommendation 10) (RATRC, 2011) and by the NSW Legislative Council Coal Seam Gas Inquiry (recommendation 9) (NSW Legislative Council, 2012).

The Australian Government has recognised this gap in chemical assessment and has commissioned a project to undertake an independent assessment of chemicals used in drilling and hydraulic fracturing for CSG extraction in Australia.

The project is being undertaken jointly by NICNAS, the Commonwealth Scientific and Industrial Research Organisation (CSIRO), the Department of Sustainability, Environment, Water, Population and Communities (SEWPaC), and Geoscience Australia. It will deliver a comprehensive national assessment of the potential human health and environmental risks arising from chemicals used in drilling and hydraulic fracturing for CSG extraction. It will also assess environmental risks arising from naturally occurring geogenic contaminants (present in soils and rocks) released from coal seams as a result of CSG extraction (depending on the availability of data).

The project aims to develop an understanding of the occupational, public health, and environmental risks of chemicals used in drilling and hydraulic fracturing for CSG extraction in an Australian context. It will provide an evidence base for the appropriate management of chemicals as part of the broader management of CSG activities and improve public access to information about chemicals used in hydraulic fracturing operations.

The project will also include preliminary laboratory studies to examine the potential movement of naturally occurring underground contaminants from coal seams and develop models to predict the extent of fracture growth within the coal seams in different locations in Australia. The project will also look to develop tools and simulators to predict concentrations of CSG chemicals in deeper groundwater.



Experience from the United States suggests that surface pathways (i.e. operational water management issues) present the highest risk to the environment, with groundwater a secondary longer term issue (Groat and Grimshaw, 2012). Hence, the project is focusing on the surface water exposures arising from spills of chemicals used in hydraulic fracturing and contamination of flow back and produced waters with these chemicals.

The project has commenced and is expected to take approximately 20 months to complete. NICNAS will convey the risk management recommendations to the relevant regulators and publish information for the general public on the NICNAS website.

### ***Chemical disclosure***

Jurisdictions have in place legislation and/or policy that require the disclosure of the nature, type and concentration of chemicals used in hydraulic fracturing. Furthermore, in Queensland under its *Petroleum and Other Legislation Amendment Regulation (No. 1) 2011*, the holder must ensure that a hydraulic fracturing activities completion report is accompanied by a statement describing the composition of the hydraulic fracturing fluid, including:

- the quantity of each component of the hydraulic fracturing fluid in kilograms, litres, or kilolitres as appropriate;
- the concentration of each component of the hydraulic fracturing fluid; and
- the name of any chemical compound contained in the hydraulic fracturing fluid.

As discussed above, in New South Wales the *Code of Practice for Coal Seam Gas: Fracture Stimulation Activities* requires full disclosure of chemicals to the regulator through a fracturing stimulation management plan.

Although there is no CSG development in Western Australia, the State Government has recently legislated disclosure requirements for products, additives, chemicals and other substances that may be used by the operator for drilling, hydraulic fracturing or other 'down-well' petroleum-related activities, as outlined in Box 6.1.

#### **Box 6.1: Western Australia: chemical and other substance disclosure requirements**

In Western Australia, under the Petroleum and Geothermal Energy Resources (Environment) Regulations 2012 and the Petroleum (Submerged Lands) (Environment) Regulations 2012, operators are required to provide the following information to the Western Australian Department of Mines and Petroleum, which may be made available in the public domain:

- disclosure details including trade name, supplier name, purpose and ingredients;
- chemical abstracts service registry number;
- maximum ingredient concentration in product;
- maximum ingredient concentration in total fluid used;
- material safety data sheet; and
- ecotoxicity information.

Complementary to Western Australia's chemical disclosure requirements, the Australian Petroleum Production and Exploration Association's *Western Australian Onshore Gas Code of Practice for Hydraulic Fracturing* suggests how operators should responsibly develop onshore gas reservoirs in Western Australia, including the use of chemicals in hydraulic fracturing. Specifically, Guideline 4 (on the use of chemicals) states that details of all fluids to be used during hydraulic fracturing operations, including information on actual usage and

fluid recovery, will be provided to the Western Australian Department of Mines and Petroleum and that operators will support the public release of this information.

### **Risk assessment of combined chemical mixtures**

No projects have yet been proposed in Australia to assess the effects of chemical combinations used in CSG operations on human health, because no scientifically validated and internationally accepted methodologies are available. Work is being undertaken internationally to analyse the combination effects of chemicals and understand the interactions between these substances. An example of this is a European scientific study undertaken to determine whether current approaches to mixture toxicology assessments provide sufficient protection level for the environment and human health or whether a regulatory change has to be implemented (European Commission, 2011).

The report found that there was a paucity of data on how to accurately predict how chemicals would act under certain conditions and in differing mixtures. It did find that chemicals may act jointly in a way that the overall level of toxicity is affected. However it also found that for chemicals with different modes of action (independently acting), no robust evidence is available that exposure to a mixture of such substances is of health or environmental concern if the individual chemicals are present at or below their zero effect levels ie. usually levels stipulated by regulators. The report went on to recommend screening methodologies and decision trees to narrow the classes of chemical mixtures which should be subject to closer study and analysis.

Australia continues to work with international partners to strengthen leading practice approaches for the assessment of combination effects of chemical mixtures, including those used in CSG operations.

## APPENDIXES

### APPENDIX 1: COAL SEAM GAS – AN OVERVIEW

Australia's substantial gas resources provide a relatively flexible and clean energy source in the transition to a lower-carbon economy, greater flexibility in meeting peak energy demand, and higher thermal efficiencies relative to other comparable fossil fuels. Gas is also considered to be a complement to renewable energy sources, to help overcome the intermittent nature of energy generation from solar or wind energy.

In Australia, exploration for CSG commenced in the Bowen Basin, Queensland, in 1976 and commercial production began in the same area in 1996. CSG is now an integral part of the gas industry in eastern Australia. Advances in CSG exploration technology and successful exploration programs have seen Australia's CSG resources double since 2010 and at the end of 2011 were estimated to be 35 905 PJ (33 tcf). See Table A1.1.

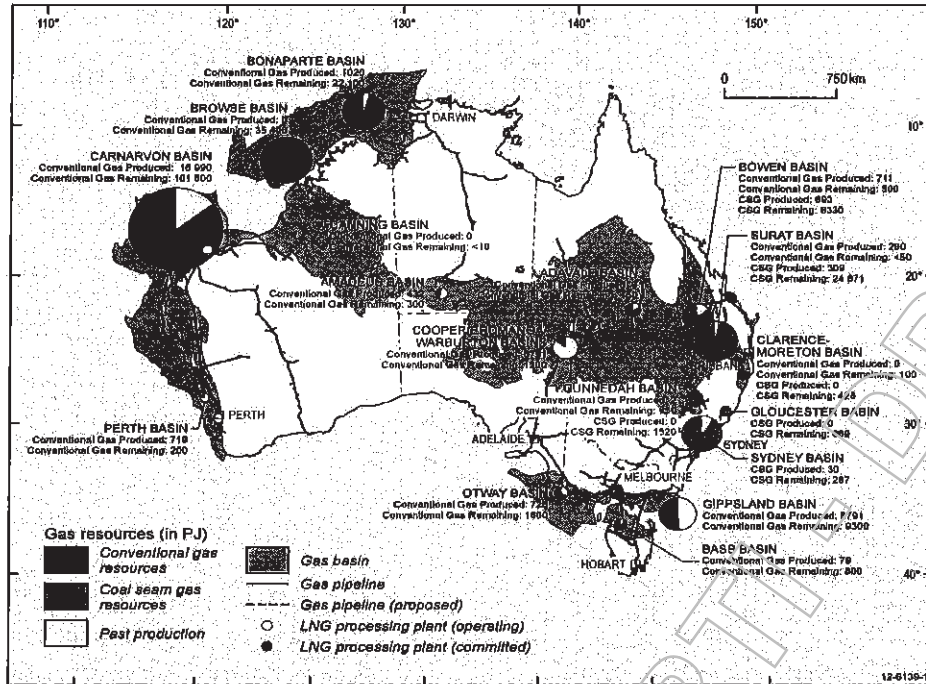
Table A1.1: Australia's total gas resources

Resource category	Conventional gas		Coal seam gas		Tight gas		Shale gas		Total gas	
	PJ	tcf	PJ	tcf	PJ	tcf	PJ	tcf	PJ	tcf
Economic demonstrated resources (EDR)	113 400	103	35 905	33	-	-	-	-	149 305	136
Subeconomic demonstrated resources (SDR)	59 600	54	65 529	60	-	-	2 200	2	127 329	116
Inferred	~11 000	~10	122 020	111	22 052	20	-	-	155 072	141
All identified resources	184,000		223 454	203	22 052	20	2200	2	431 706	392
Potential in-ground resources	n/a	n/a	258 288	235	n/a	n/a	435 600	396	694 488	631
Resources - Identified, potential and undiscovered	184 000	167	258 888	235	22 052	20	435 600	396	900 540	819

Note: Conventional gas demonstrated resources as of January 2011; CSG demonstrated resources as of January 2012; CSG 2P reserves and 2C resources are used as proxies for EDR and SDR, respectively. Source: RET, GA, BREE, 2012

CSG currently accounts for more than 35 per cent of supply in Australia's eastern gas market, meaning it accounts for more than 7 per cent of capacity in the National Electricity Market (NEM). In 2010–11, CSG provided over 4 per cent of the NEM electricity output.

Estimations of the total resource life of conventional and unconventional gas tend to increase over time as a result of new discoveries and developments in technology, which increase reserve potential. A large proportion of Australia's gas fields are undeveloped, which will result in ongoing revisions to estimates of our total gas resources. The national outlook for CSG unconventional gas resources estimates is potentially around seven times more than the current Economic Demonstrated Resources (EDR) (35 905 PJ), ranging from 275 000 PJ (250 tcf) to more than 330 000 PJ (300 tcf) (RET, GA, BREE, 2012). Figure A1.1 illustrates the location of Australia's conventional gas and CSG resources and infrastructure. Figure A1.1: Location of Australia's conventional gas and CSG resources and infrastructure



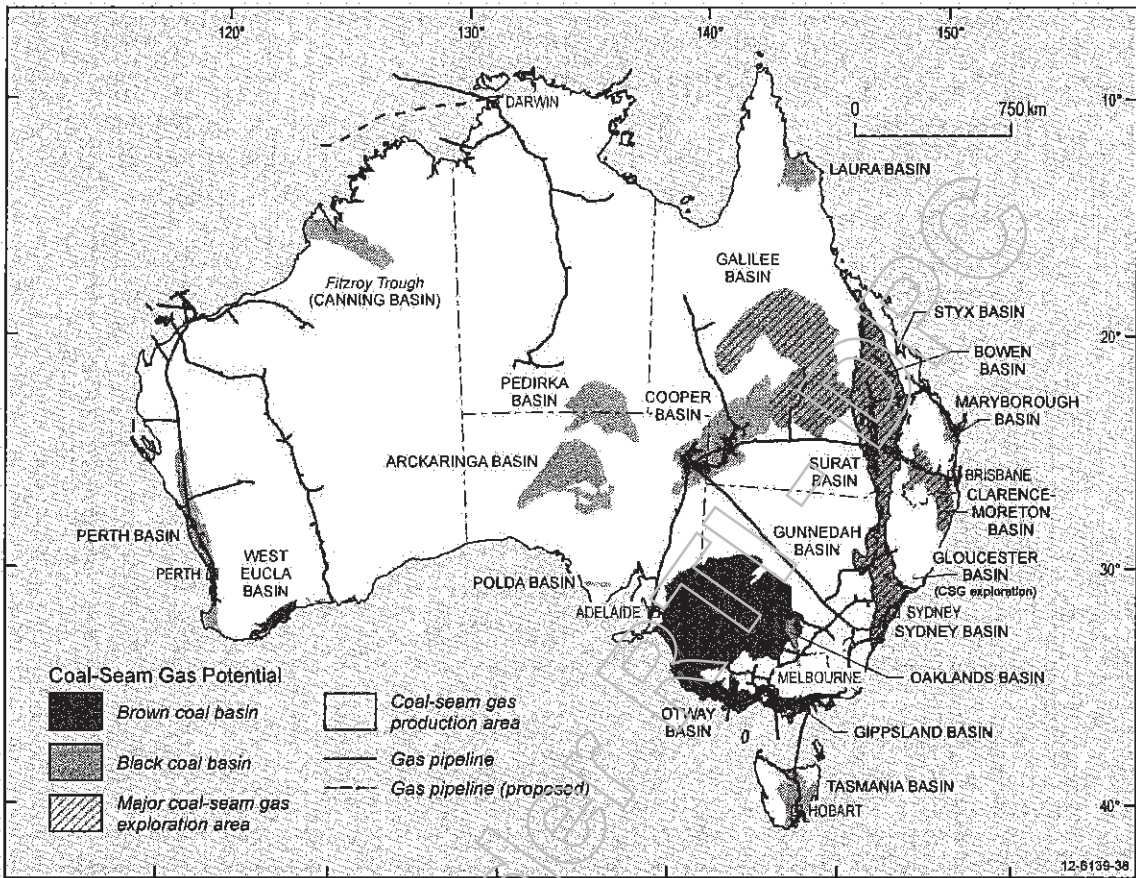
Source: RET, GA, BREE (2012).

In 2011, CSG accounted for about 24 per cent of the total gas EDR in Australia. Reserve life is around 150 years at current rates of production, noting that production is projected to increase substantially with the establishment of the CSG LNG industry (RET, GA, BREE, 2012).<sup>1</sup> In addition to EDR, Australia has substantial subeconomic demonstrated resources (65 529 PJ; 60 tcf) (AEMO, 2011) and very large inferred CSG resources. There are even larger estimates of in-ground CSG resources in excess of 258 888 PJ (235 tcf) (RET, GA, BREE, 2012). The potential of CSG in Australia's coal basins is illustrated in Figure A1.2.

<sup>1</sup> This figure varies from source to source. The Committee for Economic Development of Australia's report *Australia's Unconventional Energy Options* (September 2012) estimates this figure to be 175 years of reserves at current production.



Figure A1.2: CSG potential in Australia



Source: RET, GA, BREE 2012

To date, the majority of CSG projects in Australia have been located in Queensland, where most known CSG resources are located, with more projects expected in New South Wales in coming years. As at April 2012, six domestic gas CSG projects in Queensland had been developed to supply the domestic market. Capital expenditure for these projects was valued at over \$1 billion, including the \$500 million Darling Downs Development project undertaken by Australia Pacific LNG (Origin and ConocoPhillips) north of Roma.

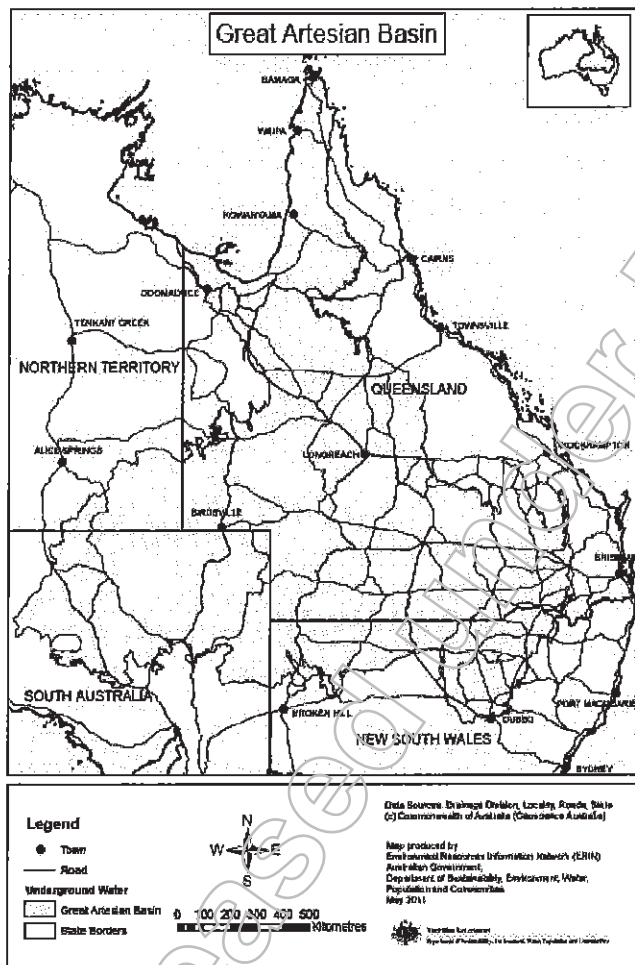
In addition, there are currently three CSG-based LNG processing facilities under construction in Gladstone, Queensland, which will be the first in the world to use CSG as a feedstock in the LNG production process for export, noting that China has already established small-scale CSG LNG for domestic use (BREE, 2012a). These LNG facilities represent a total investment of around US\$50 billion and will source CSG from a range of gas fields in the Surat, Bowen and Galilee basins. A further LNG project is currently under consideration by Arrow Energy, which is jointly owned by Royal Dutch Shell and PetroChina.

## CSG activities and water

The extraction of CSG often involves the extraction of groundwater, which is water contained in underground formations, within the pore spaces and fractures within the rocks. Where there is a range of competing water users the extraction of water during CSG activities has the potential to become a highly debated issue. A current example relates to CSG extraction from the Great Artesian Basin.

The Great Artesian Basin underlies approximately 22 per cent of Australia and occupies an area of more than 1.7 million square kilometres across parts of Queensland, New South Wales, South Australia and the Northern Territory (Figure A1.3).

Figure A1.3: Geographical coverage of the Great Artesian Basin



Source: Department of Sustainability, Environment, Water, Population and Communities website at [www.environment.gov.au/water/locations/gab/index.html](http://www.environment.gov.au/water/locations/gab/index.html).

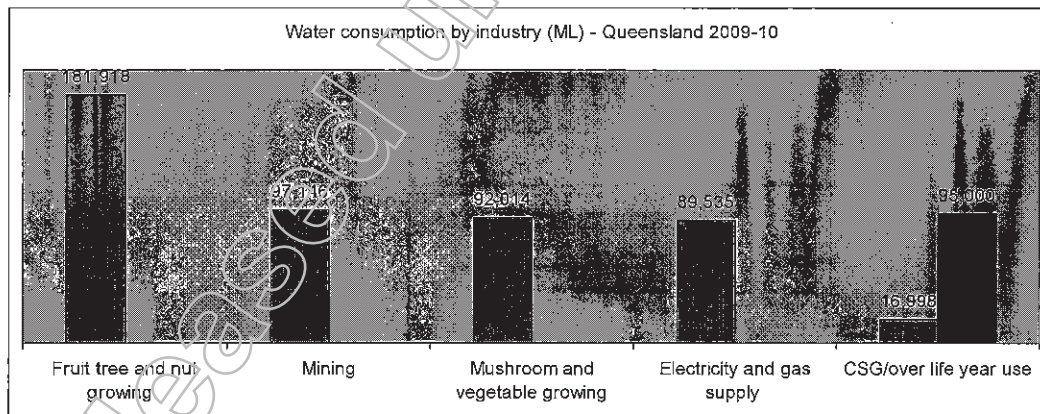
## Comparison of self-extracted water use by industry

The annual recharge of the Great Artesian Basin has been estimated to be 1000 GL per year (CSIRO, 2008). However recharge rates are highly variable and difficult to measure. The current total water production for the CSG industry in the Great Artesian Basin is estimated to be 18 000 ML per year. However, the CSG industry is still in early development and this figure is expected to increase to 95 000 ML per year over the life of the industry. In the Surat basin, which is part of the Great Artesian Basin, some 21 000 water bores are located within the designated Surat cumulative management area. According to the Queensland Water Commission, these bores extract approximately 215 000 ML per year (QWC, 2011), generally for agriculture and stock and domestic uses.

While the water extracted from coal seams is generally separate from the water extracted by other users, modelling has shown there is inevitably some interconnectivity. For example, the Queensland Water Commission estimates the average estimated net loss from the Condamine Alluvium to the Walloon Coal Measures will be around 1100 ML per year over the next 100 years.

In Queensland, water use by CSG is less than other water-using sectors but this is expected to rise as production increases. For example, the agriculture sector extracted 1 927 744 ML of water over 2009–10 compared to the mining sector, which extracted 114 114 ML (or 97 146 ML excluding CSG), of which CSG industry contributed 16 998 ML (ABS, 2012). This is also currently lower than agricultural industries of fruit tree and nut growing (181 918 ML) and mushroom and vegetable growing (92 014 ML) as well as electricity and gas supply, which consumed 89 535 ML (see Figure A1.4). As noted above, in the longer term CSG water extraction is forecast to average around 95 000 ML per year in the Surat Basin, which will see consumption levels comparative to those in other sectors across Queensland (QWC, 2012b).

Figure A1.4: Water consumption by industry - Queensland 2009–10



Source: ABS, 2012

## APPENDIX 2: AUSTRALIA'S REGULATORY REGIME FOR CSG

This appendix provides an overarching discussion on key elements of Australia's regulatory regime for CSG, including COAG principles governing the development of best practice regulation in Australia, common characteristics of legislation associated with the management of CSG, the delineation between Commonwealth and state and territory governments' responsibilities and key regulatory issues facing governments in CSG development.

### Good regulatory practice in Australia

The Council of Australian Governments (COAG) is committed to ensuring Australian regulation is effective and efficient and avoids unnecessary compliance costs and restriction on competition. Good design of regulation is important to minimise unnecessary burdens on business and the community. COAG has agreed that all governments will ensure that regulatory processes in their jurisdiction are consistent with the best practice regulation principles as outlined in Box A2.1. This commitment to best practice regulation is applied to arrangements within ministerial councils, such as the Standing Council on Energy and Resources.

#### Box A2.1: COAG principles of best practice regulation

- Establishing a case for action before addressing a problem
- A range of feasible policy options must be considered, including self-regulatory, co-regulatory and non-regulatory approaches, and their benefits and costs assessed
- Adopting the option that generates the greatest net benefit for the community
- In accordance with the Competition Principles Agreement, legislation should not restrict competition unless it can be demonstrated that:
  - the benefits of the restrictions to the community as a whole outweigh the costs
  - the objectives of the regulation can only be achieved by restricting competition
- Providing effective guidance to relevant regulators and regulated parties in order to ensure that the policy intent and expected compliance requirements of the regulation are clear
- Ensuring that regulation remains relevant and effective over time
- Consulting effectively with affected key stakeholders at all stages of the regulatory cycle
- Government action should be effective and proportional to the issue being addressed.

Source: COAG, 2007



## **Legislation for management of CSG production is generic**

The upstream petroleum sector, including the CSG industry, is subject to all Australian laws. In practice, the activities of the sector are governed by a large body of legislation. For the regulation of CSG, in addition to various petroleum laws, other legislation governs CSG activities in areas such as the environment, heritage, development, native title and land rights, and work health and safety. A number of agencies across all levels of government have a role in regulating coal seam gas activities.

For the purpose of this Framework, discussion of legislation is limited to areas that address the areas of key community, environmental and safety concern as outlined above.

While jurisdictions currently have differing levels of CSG development, the generic, non-commodity specific nature of Australia's regulatory regime for the upstream petroleum sector enables jurisdictions to manage CSG development activities under existing legislation.

## **Regulatory approach is 'layered'**

While Australia's regulatory approach to managing CSG is generic in nature, specific references to CSG can be found in jurisdictions' layered approach to managing CSG. The layered approach involves implementing a combination of legislation, policies, guidelines and codes of practice to approve, enforce and monitor CSG activities. Self-regulatory and co-regulatory approaches are also adopted, for example through the use of industry standards.

## **Objective-based regulation**

Recent years have seen a general trend away from prescriptive regulation towards objective-based regulation. This means that governments have moved away from prescribing specific standards or procedures and, instead, have emphasised achievement of the objectives of legislation, allowing industry to provide the prescriptive processes which determine how objectives are to be achieved. Regulation of the upstream petroleum sector has, at least in part, followed this trend, and further development of Australia's CSG sector and any future regulatory reform should follow suit (Productivity Commission, 2009).

Objective-based legislation requires the operator of the operation to identify the hazards and risks and describe how the risks are controlled. The operator must also describe the safety management system in place to ensure the controls are effectively and consistently applied, because the operator has the greatest in-depth knowledge of the installation. The principle is that those who create the risk must manage it.

Such an approach can leave room for discretion by regulators, which potentially creates regulatory uncertainty, however it also provides an environment that fosters more innovative practices and developments.

There are circumstances where prescriptive requirements or rules are more appropriate, or where prescription will reduce regulatory burdens or are required as commensurate to the level of risk presented. Ultimately the appropriate degree of prescription in legislative standards is a matter for assessment based on evidence and analysis.

## State and territory and Commonwealth responsibilities

Many of the regulatory arrangements currently in place for the upstream petroleum sector stem from Australia's federal system of government, with powers shared between the Australian and state and territory governments.

Responsibility for Australia's offshore areas, beyond three nautical miles from the territorial sea baseline (referred to as 'coastal waters'), rests with the Australian Government, whereas onshore and as far as three nautical miles seaward of the baseline petroleum operations are the responsibility of the individual state and territory governments. The Australian Government shares joint regulatory authority with the relevant state or territory in the adjacent areas of Commonwealth waters.

Legislative arrangements for the sector are partly defined according to the distinction between onshore and offshore areas, and partly by jurisdiction. State and territory laws generally extend to the limit of their respective coastal waters. However, petroleum, pipeline and work health and safety regulation is different in coastal waters compared to state and territory internal waters and onshore.

State and territory governments have primary responsibility for regulating onshore mining and petroleum exploration and production in Australia, including CSG. Among other things, state and territory responsibilities include assessing the environmental impacts of exploration and mining, the granting of exploration approvals and mining leases, and setting conditions to ensure resources development is undertaken in a responsible and sustainable manner.

The Australian Government may become involved in the decision-making process if a mining extraction activity is likely to have significant impacts on matters of national environmental significance under the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act). Under the EPBC Act, matters of national environmental significance include listed threatened species and communities, listed migratory species, wetlands of international importance, nuclear actions, Commonwealth marine areas, World Heritage properties and National Heritage places.

CSG activities may also trigger the Commonwealth *Water Act 2007*, under section 255AA – Mitigation of Unintended Diversions, if the activity is a subsidence mining operation, occurs on a floodplain and has the potential to impact on Murray–Darling Basin system inflows. If preconditions trigger the provisions of section 255AA, an independent expert study must be undertaken to determine the impacts of the proposed mining operations on the connectivity of groundwater systems, surface water and groundwater flows and water quality, prior to licences being granted.

## Key regulatory issues

Regardless of the extent of CSG development across Australia, the key legal issues facing regulators, the industry and communities are similar in each jurisdiction. Australia's regulatory regime for CSG should consistently address common areas of concern relating to community, environmental and safety issues across all jurisdictions.

### Water management and monitoring

- Management and extraction of CSG water
  - CSG exploration and production generates large volumes of co-produced water from coal formations. Such water is referred to as CSG associated water or simply CSG water.
  - CSG water often has a high (but variable) salt content and may have other qualities that require management in order to minimise or prevent environmental harm.
- Evaporation and aggregation dams
  - Linked to the issue of CSG water management is the use of evaporation dams. In the past, it has been common practice to use evaporation ponds or dams as the primary means of disposal of CSG water.
  - Due to the significant footprint of evaporation dams and the environmental impact of such disposal, consideration is given to phasing out such dams for CSG.
- Impact on groundwater and aquifers
  - The impact of CSG extraction on other water users has been the subject of significant legislative responses in some jurisdictions.
  - The primary concerns are:
    - leakage of fresh water into coal measures resulting in water contamination (called inter-aquifer leakage), which can, in turn, cause subsequent aquifer interactions
    - impact on other users of bores and springs by reducing the amount of water available to (for example) water stock or to use for domestic purposes.

### Well integrity

- Concerns associated with well integrity and health and safety are critical to the CSG industry and, in many ways, inextricably linked to the key issues described above.

### Hydraulic fracturing and chemical use

- Concern about the use of chemicals during the hydraulic fracturing process (in particular the use of BTEX chemicals – benzene, toluene, ethylbenzene and xylene) has led to a high regulation of hydraulic fracturing activities and, in some

States (such as Queensland and New South Wales), the restriction of BTEX during this process.

#### Other issues – land use

- Potential conflict with agricultural and strategic cropping uses
  - A balance must be struck between agricultural, mining and urban development in order to maintain the long-term viability of food and fibre industries while at the same time supporting economic growth for regional communities.
- Landholder rights and land access
  - There are instances of resistance to CSG proponents having access to private land in order to carry out exploration and production activities. Australian states and territories are endeavouring to address landholder concerns (while allowing reasonable and timely access to land for proponents) by developing a regulatory framework, land access codes of practice and strategic regional land use plans.
- Overlapping tenements
  - It is quite common for CSG tenements to overlap with coal tenements. As a result it has been necessary for some Australian jurisdictions to consider and regulate these directly competing resource developments to ensure the exploitation of the resource is maximised while fairly dealing with the interests of tenement holders. This has proven to be a difficult exercise, with the emphasis placed on reaching agreement between the tenement holders rather than intervention from government.

A robust regulatory regime needs to have adequate consideration for best practice regulation. While all jurisdictions may have generic legislation in place to enable the management of CSG, the extent and specificity to which jurisdictions address these key legal issues in their regulatory regimes will depend on their level of CSG development and be proportional to the issue being addressed.



## GLOSSARY

<b>annulus</b>	The space around a pipe in a well bore, the outer wall of which may be the wall of either the bore hole or the casing; sometimes termed the annular space
<b>aquifer recharge</b>	Process where a water source, such as recycled water, is used to recharge an aquifer with water under controlled conditions. In this process the aquifer is used to store surplus water for later use or for environmental benefit.
<b>aquiclude</b>	A low permeability unit that forms either the upper or lower boundary of a ground water flow
<b>aquitard</b>	A low permeability unit that can store ground water and also transmit it slowly from one aquifer to another
<b>as low as reasonably practicable (ALARP)</b>	This means that the operator has to show, through reasoned and supported arguments, that there are no other practical measures that could reasonably be taken to reduce risks further. The cost involved in reducing the risk further would be grossly disproportionate to the benefit gained. In some cases a regulator will determine that ALARP is not sufficient and the project will not be allowed to proceed.
<b>baseline assessment</b>	An assessment of an existing water bore, surface waters and waterways, groundwater systems, springs and other potential groundwater-dependent ecosystems, to obtain information about the level and quality of water that may be affected by CSG activity, including the dewatering of coal seams. A baseline assessment is undertaken prior to the commencement of the activity.
<b>blowout preventer (BOP)</b>	Stops the uncontrolled release of drilling fluids and hydrocarbons from the well in the event that a pressured zone is encountered, and is important for reducing work health and safety risks for the well crew.
<b>BTEX</b>	Refers to benzene, toluene, ethylbenzene and xylene. These compounds occur naturally in crude oil, natural gas and petroleum deposits.
<b>coal seam gas (CSG)</b>	A form of unconventional natural gas that occurs within the pores and fractures of coal seams.
<b>co-existence</b>	Principle that acknowledges and respects the rights of all land users and the potential of all regulated land uses, while ensuring that regulated land is not restricted to a sole use without considering the implications or consequences for other potential land uses, and the broader benefits to all Australians.
<b>co-produced water</b>	Water trapped in coal seams returned to the surface during the extraction of coal seam gas.

<b>desorbed</b>	The opposite of absorb, to release a substance through pores, small openings or spaces between objects
<b>dewatering</b>	Refers to the extraction of water from coal seams in order to reduce pressure and allow gas to flow to the well.
<b>drilling fluids</b>	Fluids used during the drilling of CSG wells to facilitate boring by reducing friction, stabilizing rock layers, clays and shales, and optimising drilling times.
<b>ecologically sustainable development (ESD)</b>	Using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased. The core objectives of ESD are to enhance individual and community wellbeing and welfare by following a path of economic development that safeguards the welfare of future generations; to provide for equity within and between generations; and to protect biological diversity and maintain essential ecological processes and life-support systems. Decision-making processes should effectively integrate both long- and short-term economic, environmental, social and equity considerations.
<b>environmental impact assessment (EIA)</b>	The process of identifying, predicting, evaluating and planning to mitigate the biophysical, social, and other relevant effects of development proposals prior to major decisions being taken and commitments made.
<b>environmental assessment (EA)/environmental impact report (EIR)</b>	Establishes an environmental baseline as a reference point for impact prediction and evaluation, and analyses interactions between the environment, the project and social impacts.
<b>environmental management plan (EMP)</b>	A project-specific plan developed to ensure that appropriate environmental management practices are followed.
<b>evaporation dam</b>	A means of disposal of CSG water through evaporation.
<b>flow-back</b>	A water-based solution that flows back to the surface during and after the completion of hydraulic fracturing.
<b>geological assessment</b>	Required to determine the environmental impact of hydraulic fracturing.
<b>geogenic material</b>	Contamination of naturally occurring elevated concentrations of certain elements, such as arsenic, fluoride, uranium or selenium, in groundwater which have a negative human health effect.
<b>good oilfield practice</b>	Concept which means all those things that are generally accepted as prudent and safe in carrying on petroleum and gas exploration and production
<b>groundwater</b>	Water beneath the grounds surface that fills up the tiny spaces

	between particles of soil, sand, gravel or rock formations.
<b>hierarchy of risk control measures</b>	Sequence of options that offers operators a number of ways to approach the hazard control process. A hierarchy of control ensures that risks are dealt with in an order of priority, where the most effective risk controls are addressed first, with less effective options considered thereafter.
<b>hydraulic fracturing</b>	Process by which hydrocarbon bearing formations are 'stimulated' to enhance the flow of hydrocarbons to the well head. It involves the injection of fluid made up of water, sand and additives under high pressure through the perforated well casing into a geological formation from which hydrocarbons (oil, gas) are intended to be extracted.
<b>impact</b>	An unintended environmental, social or economic effect on the environment as a consequence of CSG operations.
<b>induced seismicity</b>	Ground movement that may arise in some circumstances from, for example, water filling a dam, and from fluid injection into the subsurface.
<b>leading practice</b>	Used in this report to describe the range of practices that are currently applied nationally and internationally that constitute the leading approach. Leading practices are different from best practices in that leading practices are leading at a point in time and the notion reinforces the need for continuous improvement.
<b>mini-frac</b>	Pre-hydraulic fracturing test used to inform the actual hydraulic fracturing process and identify whether the design may need to be adjusted for site-specific conditions. A mini-frac pre-hydraulic fracturing test uses a smaller volume of hydraulic fracturing fluid at lower pressures and less duration.
<b>multiple land use</b>	Where land is used for different purposes simultaneously, and sustainably, within an area, with a view to maximising the benefits for all Australians. The objective is to retain options for current and future use to maximise the net benefits of all forms of land use to present and future generations.
<b>proppant</b>	Used to hold open cracks in a formation so that energy has a pathway to access the well and is usually in the form of sand and chemical additives.
<b>sequential land use</b>	Involves using land first for one purpose, and then later for another purpose, once the first land use has ended or been terminated. The sequential land use may be a reinstatement of the former land use or development of an alternative land use.
<b>toxicology assessments</b>	Analysis of the cumulative effects of chemical mixtures and assessments of individual substances.

<b>verification</b>	Certification undertaken by a qualified professional to assess whether relevant modelling, plans, construction, deployment, or other requirements are fit for purpose, and meet work health and safety and environmental objectives.
<b>virtual reinjection</b>	This is water provided to water users as a substitute or offset for aquifer extractions intended to alleviate pressure on water resources.
<b>viscosifier</b>	Substance added to a fluid to change the thickness or resistance of the fluid.
<b>well decommissioning</b>	A process that involves shutting down a well and rehabilitating the site. This is necessary when the economic limit of the well is reached, and entails protection of groundwater resources and isolation of the productive formations from other formations with pressure-tested cement, placing a surface cement plug in the top of the casing, and removing surface equipment, including the well head.
<b>well integrity</b>	Describes the application of technical, operational and organisational solutions to the construction, operation and decommissioning of CSG wells so that the uncontrolled release of fluids, solids and gases into the subsurface or surface environment can be prevented over the full life cycle of the well.

Released under EPT/OPC



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Hon Andrew Cripps MP  
Minister for Natural Resources and Mines

Ref CLLO-13066

22 MAY 2013

The Honourable Campbell Newman MP  
Premier of Queensland  
PO Box 15185  
CITY EAST QLD 4002

Dear Premier

I am writing to you about the National Harmonised Regulatory Framework for Coal Seam Gas (the Framework), seeking your approval to communicate the Queensland Government's position and endorse the final Framework to the Standing Council on Energy and Resources (SCER) at its meeting on 31 May 2013.

As you are aware, the Framework has been developed under the auspices of SCER and is intended to be a guidance and reference tool for federal, state and territory regulators for the coal seam gas (CSG) industry. Its purpose is to provide a suite of national and global leading practices to consider and implement in the assessment and ongoing regulation of proposed CSG projects in the areas of well integrity, water management and monitoring, hydraulic fracturing, and chemical use.

On 11 December 2012, you endorsed the Queensland Government's support of the draft Framework and its release for public consultation. On 14 December 2012, I advised SCER of the Queensland Government position and SCER agreed to release the draft Framework for public consultation.

Public consultation was undertaken over a period of 11 weeks from December 2012 to February 2013 to seek comment from stakeholders on the draft Framework. The comments received have been considered in the finalisation of the Framework, in particular, sections have been added on the precautionary principle and the adaptive management approach, and on cumulative impacts on water resources.

My department has also consulted extensively with the Department of Environment and Heritage Protection and the Department of State Development, Infrastructure and Planning on the final Framework. These departments have indicated that they support the final Framework in-principle.

There have been minor rewording edits to the leading practice strategies, but the meaning and intent of the strategies have been left intact. Based on advice from relevant agencies, Queensland already complies with all 18 leading practice strategies and it appears that no changes are required to Queensland's regulatory framework for the CSG industry.

The Resources Cabinet Committee (RCC) was scheduled to consider the final Framework on 14 May 2013. However, RCC was unable to meet on that date. The next RCC meeting is not scheduled until 11 June 2013.

Level 17 QMEC Building  
61 Mary Street Brisbane Qld 4000  
PO Box 15216 City East  
Queensland 4002 Australia  
Telephone +61 7 3225 1861  
Facsimile +61 7 3224 2491  
Email nrm@ministerial.qld.gov.au



I therefore seek your approval to communicate the Queensland Government's support of the final Framework and endorse it for public release on the SCER website at the 31 May 2013 SCER meeting. In order for Queensland to be in a position to support the final Framework at the SCER meeting, your approval is required by 28 May 2013.

If you have any questions about my advice to you, Ms Susan McDonald, Chief of Staff, will be pleased to assist you and can be contacted on telephone 3227 8070.

Yours sincerely



**Andrew Cripps MP**  
**Minister for Natural Resources and Mines**

Released under RTI - DPC





Hon Andrew Cripps MP  
Minister for Natural Resources and Mines

Ref CLLO-13066

22 MAY 2013

The Honourable Campbell Newman MP  
Premier of Queensland  
PO Box 15185  
CITY EAST QLD 4002

Level 17 QMEC Building  
61 Mary Street Brisbane Qld 4000  
PO Box 15216 City East  
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Telephone +61 7 3225 1861  
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Yours sincerely



**Andrew Cripps MP**  
**Minister for Natural Resources and Mines**

Released under RTI - DPC

**Sarah Partosh**

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**From:** s.73 Organisation [redacted]@hotmail.com>  
**Sent:** Sunday, 26 May 2013 10:13 AM  
**To:** The Premier (Ministerial); Premiers Master; The Premier  
**Cc:** Alan Jones; Andrew Cripps; Andrew Powell; Bill Date; brendan.barrett@originenergy.com.au; Brett Smith; Brian Monk; Cassandra Hough; catherine.tanna@bg-group.com; charmaine.aldridge@communities.qld.gov.au; Chris Bath; communities@ministerial.qld.gov.au; community@ggc.com.au; Dave and Cathy Monk; david.darvall@ehp.qld.gov.au; deborah.williams@bg-group.com; deputypremier@ministerial.qld.gov.au; Derek Fisher; Drew Hutton; drhelenfr@gmail.com; editorial@chinchillanews.com.au; education@ministerial.qld.gov.au; energyandwater@ministerial.qld.gov.au; enquiries@gfcq.org.au; gasfieldscommission@deedi.qld.gov.au; gasfieldscommission@qld.gov.au; Gayle Sainsbury; Healy, Samantha; Heidrich, Tony; Heiner Ian; Jack Dempsey; jamie.kemshead@bg-group.com; Jarrod Bleijie; John Cotter; john.cotter@gfcq.org.au; Lawrence Springborg; pumicestone@parliament.qld.gov.au; Mark; mccarthyj@couriermail.com.au; Michael Bretherick; minister.bates@ministerial.qld.gov.au; nikki.voss@originenergy.com.au; pauline.jacob@bg-group.com; penny\_hutchinson@health.qld.gov.au; Renee Hoare; Rhianwen Whitney; rob.millhouse@bg-group.com; Sam; senator.carr@aph.gov.au; Stephanie Smail; stephen.matheson@deedi.qld.gov.au; Tony Nunan; tony.abbott.mp@aph.gov.au; Tracey Winters; virgil\_kelk@health.qld.gov.au; tony.burke.mp@environment.gov.au  
**Subject:** IS CSG SAFE?

Attention: Premier Campbell Newman and Campbell Newman the person

Why will you not provide the information i requested.  
It is a simple question really:

IS CSG SAFE?

Why is this question so hard to answer?

If you can not answer this question Premier, then you need to rethink the CSG industry.

I find it extremely interesting that neither Government or CSG Companies are prepared to answer my simple question!

Regards

[redacted]

**Sarah Partosh**

---

**From:** [REDACTED] s.73 Personal Information [REDACTED]@hotmail.com>  
**Sent:** Monday, 27 May 2013 9:51 AM  
**To:** The Premier  
**Subject:** RE: Food & water security

As per your request for full name and address please find below

[REDACTED]

With regard to 'due course' How long might that be?

With regard to 'if appropriate' I would suggest that on a matter as serious as food security and the future plan for queensland (which I assume the people of Queensland's questions and concerns will be taken into account) a reply would be appropriate.

Sincerely

[REDACTED]

---

**From:** The.Premier@premiers.qld.gov.au  
**To:** [REDACTED]@hotmail.com  
**Date:** Thu, 16 May 2013 09:51:25 +1000  
**Subject:** RE: Food & water security

Thank you for your email to the Honourable Campbell Newman MP, Premier of Queensland. The Premier appreciates the time you have taken to contact him with your comments. Please be aware that a formal response will only be provided to messages that contain a **full name and postal address**. As the Premier receives a large amount of correspondence, a response will be provided, if appropriate, in due course.

Yours sincerely

Office of the Premier

---

**From:** [REDACTED] [mailto:[REDACTED]@hotmail.com]  
**Sent:** Thursday, 16 May 2013 9:39 AM  
**To:** The Premier  
**Subject:** FW: Food & water security

---

Premier Newman,

As I write this email I am becoming increasingly concerned about the future security of food and water in Australia. As you will be well aware, we live in a country that suffers at times from extreme drought leaving our farmers struggling in the extreme.

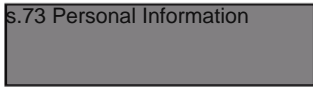
At the moment I understand a future plan for Queensland is being put together (not before time) and this appears to be the perfect time to get things right. One would hope the 'vision' for QLD doesn't include the continued danger to all Australians by allowing the Coal Seam Gas fracturing process to continue. The risk of further polluting The great Artesian Basin and other aquifers is to great when looked at from the point of food and water security in the future. The lines, "Can't drink gas, can't eat coal" come to mind.

I would like to hear your opinion on CSG mining and in particular the 'fracturing' process used. The other thing I would like to know your thoughts on is, "Do you think it's a fair thing that QLD farmers don't have the right to refuse mining companies entry to their farms?"

Thanks in advance, for taking the time to respond.

Sincerely,

s.73 Personal Information



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**Sarah Partosh**

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**From:** The Premier  
**Sent:** Thursday, 30 May 2013 1:31 PM  
**To:** The Premier  
**Subject:** Underground Coal Gasification

**Importance:** High

Subject: Underground Coal Gasification

Title: MR

First Name: [Redacted] s.73 Personal Information

Family Name: [Redacted]

Email: [Redacted]@com.au

Phone: [Redacted]

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Address: [Redacted]

Town: [Redacted]

State: [Redacted]

Postcode: [Redacted]

Email: [Redacted]@com.au  
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Comment:

Dear Mr Newman,

This is the 2nd letter I've written to you on the subject of Underground Coal Gasification (UCG) and the government decision and stance and future for this technology in Queensland.

I feel they answered to my last email basically got the political curve ball and pretty much went unanswered.

I will be upfront like in my previous email and tell you that I'm an investor in this fantastic technology and have been waiting for several years now for the government to get it's act together and make a decision, I was told by the previous Bligh government that this decision would be made by December 2012 and then when your government came to power it was early 2013, well as you are aware 2013 is almost half way gone and still none the wiser on what the future will be for this technology.

I must say I feel that new investments and technologies in this state are currently being treated with contempt and poorly and inadequately supported. I as a Qld voter and investor in this states future I feel that I deserve an answer on this matter and not a government curve ball, avoiding trying to avoid this important issue.

I soon hope to hear your response to my important query.

Thank you

[Redacted Signature]

**Sarah Partosh**

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**From:** The Premier  
**Sent:** Saturday, 1 June 2013 1:51 AM  
**To:** The Premier  
**Subject:** UCG Queensland

**Importance:** High

Subject: UCG Queensland

Title: Mr.

First Name: [Redacted] s.73 Personal Information

Family Name: [Redacted]

Email: [Redacted]

Phone:

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Address:

Town:

State:

Postcode:

Email: [Redacted]

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Comment:

Dear Mr. Campbell Newman,

i am a german shareholder of an australain company and hopefully awaiting a decision about UCG in queensland. Will there be a decision in the near term future?

Best regards from a rainy germany

[Redacted]

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