

Re: Dewhurst Gas Exploration Pilot Expansion Project - Grounds for Objection

1. ECONOMICS

The absence of any cost/benefit analysis (CBA) in the EIS¹ indicating a “net public benefit”

“A net public benefit or cost of a project can be calculated through the net benefit of a project less any associated public expenditure and any negative social, health or environmental impacts.”²

Avoiding a CBA has been labelled as "biased", "abused" and "deficient" by the ABS, Productivity Commission and Land and Environment Court respectively and doesn't comply with DGRs³. DGRs call for a demonstration of "net benefit" to the NSW community. NSW Treasury and Department of Planning put out guidelines in Nov last year specifically to guide cost benefit analysis of mining and CSG projects. These have not been followed.⁴

The (alleged) “benefit” of the project has been widely promoted as proving a resource and supplying gas to NSW markets⁵, based on an unverifiable future supply deficit⁶. In the absence of any gas reservation policy⁷ this claim is ambit and the gas may be redirected to export. There is no quantifiable net benefit accruing to NSW consumers or to NSW manufacturers. NSW consumers and manufacturers will be forced to pay export parity prices with no guarantee of supply⁸.

There are few long-term jobs created by this industry. The losses, in terms of impacts on farming capacity, liveability, lifestyle, water supply, biodiversity, air quality and the personal health of those forced to deal with these companies, have not been considered in the approval process. There are rafts of negative social and other community impacts which need to be considered in a CBA of the entire Santos Project (of which this EIS forms a small part).

These include (but are not limited to):

¹ http://www.planning.nsw.gov.au/Portals/0/DevelopmentAssessments/OnExhibition/cba_guidline.pdf

² http://www.planning.nsw.gov.au/Portals/0/DevelopmentAssessments/OnExhibition/cba_guidline.pdf

³ http://www.lockthegate.org.au/have_your_say_protecting_pilliga

⁴ http://www.planning.nsw.gov.au/Portals/0/DevelopmentAssessments/OnExhibition/cba_guidline.pdf

⁵ <http://www.theaustralian.com.au/business/opinion/nsw-must-secure-its-energy-future-and-restore-investor-confidence/story-e6frg9if-1226708587960#mm-register>

⁶ <http://www.abc.net.au/news/2013-09-30/gas-shortages-nsw-macfarlane/4980952>

⁷ http://www.domgas.com.au/pdf/Alliance_reports/DomGas%20Report%202012.pdf

⁸ http://grattan.edu.au/static/files/assets/ba24a4e0/189_getting_gas_right_report.pdf

- a demographic shift as lower income families and elderly are forced out of districts by rising costs ⁹
- unbalanced male-dominated demographic ¹⁰
- inability of other businesses & sectors to find and maintain staff ¹¹
- tensions between non-gas and gas industry residents ¹²
- increased traffic and traffic accidents ¹³
- road damage from gas-field associated traffic ¹⁴
- taxpayer-funded road and bridge repairs ¹⁵
- increased crime ^{16 17}
- construction of “man camps” to hold short-term construction employees ^{18 19}
- disposal of effluent from camps ²⁰
- increased air pollution ^{21 22}
- water impacts ²³
- strain on health and other services ^{24 25}
- Impact on tourism and agriculture ^{26 27 28}
- impact on property values ²⁹ and bank lending ³⁰

⁹ <http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4102.0Main+Features10April+2013>

¹⁰ <http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4102.0Main+Features10April+2013>

¹¹ http://nrha.org.au/12nrhc/wp-content/uploads/2013/06/Constantine-Sarah_ppr.pdf

¹² <http://www.smh.com.au/federal-politics/the-question/is-coal-seam--gas-worth--the-risk-20110819-1j20j.html>

¹³ <http://www.couriermail.com.au/extras/qweekend/fff/features/pdfs/239.pdf>

¹⁴ <http://www.dailymercury.com.au/news/push-for-mines-to-fix-roads/2060352/>

¹⁵ <http://www.dailymercury.com.au/news/push-for-mines-to-fix-roads/2060352/>

¹⁶ <http://www.smh.com.au/business/dark-side-of-the-mining-boom-20101206-18mb3.html>

¹⁷ <http://www.news.qut.edu.au/cgi-bin/WebObjects/News.woa/wa/goNewsPage?newsEventID=34358>

¹⁸ <http://www.abc.net.au/radionational/programs/lifematters/social-impact-of-the-mining-boom/4034284>

¹⁹ <http://www.news.com.au/national/as-mining-booms-in-central-queensland-studies-disclose-risk-of-temporary-dongas-dominating-the-landscape/story-e6frfkp9-1226079510154>

²⁰ <http://www.news.com.au/national/as-mining-booms-in-central-queensland-studies-disclose-risk-of-temporary-dongas-dominating-the-landscape/story-e6frfkp9-1226079510154>

²¹ <http://www.npi.gov.au/npi-data/search-npi-data>

²² <http://thinkprogress.org/climate/2013/12/05/3021311/public-lands-carbon-sinks-carbon-polluters/>

²³ <https://crawford.anu.edu.au/pdf/inthenews/12186-unconventional-gas-document-web-fa.PDF>

²⁴ <https://crawford.anu.edu.au/pdf/inthenews/12186-unconventional-gas-document-web-fa.PDF>

²⁵ http://blogs.crikey.com.au/croakey/2013/04/10/central-queensland-study-shows-impact-of-mining-boom-on-rural-health-services/?wmp_switcher=mobile

²⁶ http://nrha.org.au/12nrhc/wp-content/uploads/2013/06/Constantine-Sarah_ppr.pdf

²⁷ http://www.stcplanning.org/usr/Program_Areas/Energy/Naturalgas_Resources/STC_RumbachMarcellusTourismFinal.pdf

²⁸ <http://www.stockandland.com.au/news/agriculture/general/news/coal-and-gas-mining-spark-protests/2668626.aspx>

²⁹ <http://www.abc.net.au/news/2013-12-05/farmers-not-losing-sleep-over-hartchers-shock-resignation/5138940>

³⁰ <http://www.smh.com.au/business/banks-restrict-loans-in-risky-mining-towns-20131125-2y636.html>

³¹ <http://www.homeloanexperts.com.au/property-types/mining-towns/>

2. GROUNDWATER

- **Absence of a long-term plan for the safe/sustainable disposal of the saline water³¹ produced by this project (estimated at 331ml and 413 ml, over three years, for the operation of Dewhurst 13-18H and Dewhurst 26-31 pilots)**
- **Absence of established long-term baseline groundwater data**

The produced water is not only saline, but it also contains petrochemicals and heavy metals, which will be released into the environment at some point in the process. Santos have not provided an effective plan for disposal.

Despite the risks posed by the new tri-lateral wells there is no established baseline data for the important groundwater systems underlying the Pilliga such as the recharge zone for the Great Artesian Basin (GAB). The aquifer monitoring bores required to do this are not yet



commissioned and some are still to be constructed.

The issue of maintaining water pressure in the aquifer is not considered in view of the cumulative impacts of water extractions. The issue is not simply one of managing the amount of water extracted, but also considering impacts on water pressure and subterranean flow rates³²

The cumulative water model used by Santos lacks the basic data required to assess the impacts of drilling for coal seam gas on groundwater in the future.

No drilling should be approved for gas exploration until water monitoring has been conducted over a suitable time frame.

³¹ <http://www.smh.com.au/environment/coal-seam-gas-industry-faces-salt-overload-20131204-2yqx8.html>

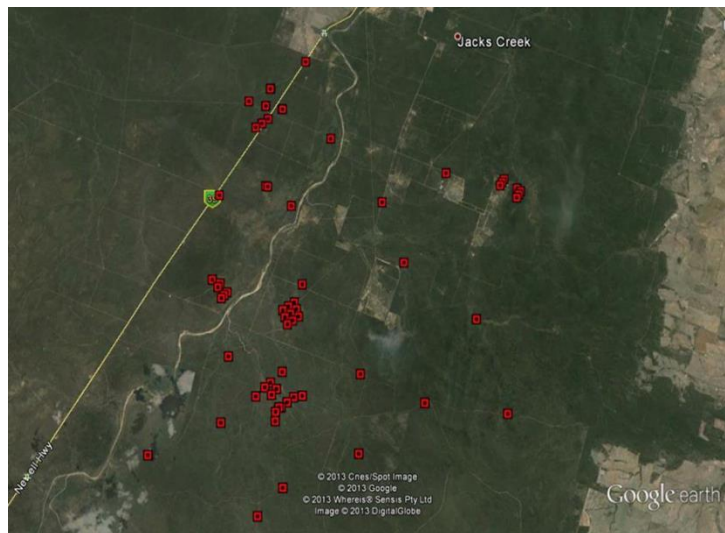
³² Habermehl, M.A.(1996) *Groundwater movement and hydrochemistry of the Great Artesian Basin, Australia* In Mesozoic 96:Mesozoic Geology of the Eastern Australia Plate Conference. Geological Society of Australia Inc., Extended abstracts 43;228-237

3. THE ROLE AND FUNCTION OF BOHEMIA CREEK (AND OTHER CREEKS AND TRIBUTARIES) IN THE ENVIRONMENT IS NOT CONSIDERED

According to established research^{33 34} these **ephemeral streams** “...provide the same ecological and hydrological functions as perennial streams by moving water, nutrients, and sediment throughout the watershed.”

“When functioning properly, these streams provide landscape hydrologic connections; stream energy dissipation during high-water flows to reduce erosion and improve water quality; surface and subsurface water storage and exchange; ground-water recharge and discharge; sediment transport, storage, and deposition to aid in floodplain maintenance and development; nutrient storage and cycling; wildlife habitat and migration corridors; support for vegetation communities to help stabilize stream banks and provide wildlife services; and water supply and water-quality filtering.”³⁵

They provide a wide array of ecological functions including forage, cover, nesting, and movement corridors for wildlife. Because of the relatively higher moisture content in arid and semi-arid region streams, vegetation and wildlife abundance and diversity in and near them is proportionally higher than in the surrounding uplands.”³⁶



Intersecting these streams with gas/water flow-lines and roads will impair their function in the landscape, impact biodiversity and affect all water users

³³ http://www.epa.gov/esd/land-sci/pdf/EPHEMERAL_STREAMS_REPORT_Final_508-Kepner.pdf

³⁴

³⁵ http://www.epa.gov/esd/land-sci/pdf/EPHEMERAL_STREAMS_REPORT_Final_508-Kepner.pdf

³⁶ http://www.epa.gov/esd/land-sci/pdf/EPHEMERAL_STREAMS_REPORT_Final_508-Kepner.pdf

4. BIODIVERSITY IMPACTS

The Pilliga Forest is known to host Federal and State listed threatened species including the Pilliga Mouse (found only in the Pilliga), Koala's, the Black Striped Wallaby, Eastern Pygmy Possum, and many more³⁷. The Pilliga is also a haven for birdlife, including the internationally protected Rainbow Bee-eater.

These unique creatures are the heritage of future generations and should not be put at further risk.



Santos has admitted that their CSG exploration will destroy habitat for the Pilliga Mouse. The breeding status and population dynamics of the threatened species in the Pilliga are very poorly understood.³⁸



No baseline ecological surveys to assess the population dynamics and status of the Pilliga Mouse and other threatened species have been conducted.

(Photos 30th Nov 2013)

³⁷ <http://www.environment.gov.au/cgi-bin/sprat/public/publicthreatenedlist.pl>

³⁸ http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=99

5. SURFACE WATER MITIGATION MEASURES ARE NOT BEING APPLIED

It is not merely sufficient for Santos to discuss issues in their EIS – it must also apply the law as prescribed.

A sediment and erosion plan³⁹ appears to not be implemented for water flow lines **currently under construction** - despite this being a stated requirement of the approval granted by the Office of Coals Seam Gas - 18 Sept 2013.

Clauses 4 and 7 for the flow-line approvals⁴⁰ note that creek crossings must be designed according to NSW Guidelines for Controlled Activities⁴¹.

Note: The photograph of a Bohemia Creek overflow (below) was taken 30 Nov 2013 - and no erosion protection or sediment controls are in place.



M. Cullen - Ba. Teaching/Ba. General Studies, Stock & Meat Inspection (Animal Health), Dip. Landcare and Natural Resources, Cert IV Training & Assessment, Grad Cert in Science (Geology), Life Member - Golden Key International Honours Society, Member- AusIMM, Member (former) – AIAST- Aust Institute of Agricultural Science and Technology

³⁹ <http://www.environment.nsw.gov.au/stormwater/publications.htm>

⁴⁰ http://www.resources.nsw.gov.au/__data/assets/pdf_file/0006/475845/REF-Dewhurst-Southern-Water-and-Gas-Flow-Lines-Approval-Letter.pdf

⁴¹ <http://www.water.nsw.gov.au/Water-Licensing/Approvals/Controlled-activities/default.aspx>