



Reply to: Sally Hunter, Baan Baa
by email: sallyhunter030508@gmail.com

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Submission: Environmental Impact Statement for the Narrabri CSG gasfield

Thank you for the opportunity to make a submission to the Environmental Impact Statement for the proposed CSG gasfield at Narrabri.

The North West Alliance is an affiliation of groups across North West NSW who have an interest in education and advocacy around extractive industries projects. It is comprised of local, regional and state-wide community groups including groups based in Narrabri, Bellata, Maules Creek, Coonabarabran, Gilgandra, Dubbo, Coonamble, Burren Junction, Walgett, Tamworth, Armidale, Mullaley and the Liverpool Plains.

Members of the North West Alliance are united in our opposition to this gasfield and its associated infrastructure and pipeline. These developments are a wholly inappropriate land use for the Pilliga Forest and its surrounding productive farmland and poses unacceptable risks to the Great Artesian Basin and Namoi alluvium upon which the agricultural industries and towns of our region rely.

The gasfield is an industrial development in an area that is one of 15 biodiversity hotspots around the country, and an important refuge for declining woodland birds and migratory species. The Pilliga is also a crucial part of the cultural and spiritual life of the Gomeroi people and a beloved natural place of recreation and exploration for the broader community.

We are disappointed with the poor quality of the Environmental Impact Statement which includes information that is out of date and indicates poor attention to detail and a general lack of thorough data collection and analysis. It is unfortunate that community groups must commission independent review of the various parts of the Environmental Impact Statement in order to obtain accurate and objective analysis of the likely impacts of this gasfield on our communities, environment and economy. Nevertheless, we have obtained a series of expert reviews of the material provided by Santos which we append to this report.

We provide a summary here of some of our key objections and the most glaring problems with the EIS and Santos' proposal, but seek the assurance of the Department of Planning that the problems, questions and gaps raised by the expert reviews we provide with this submission will be addressed in full.

Sincerely,

Nicky Chirlian
Willow Tree

Peter Small
Coonabarabran

Jan Robertson
Gilgandra

Sally Hunter
Baan Baa

Megan Kuhn
Bundella

On behalf of the North West Alliance

Summary

Water

- All member groups of the North West Alliance have expressed major concerns regarding the risk to ground water. As our three expert reviews on this subject make clear, the material presented by Santos is inadequate for the purpose of assessing the impact of this gasfield and has not accurately characterised the risk.
- Of critical importance to the North West Alliance is the recognition in the EIS that the effects of pumping CSG production water will impact the area on a regional scale.
- More than one reviewer identified a basic lack of data on hydraulic head measurements prior to the development proceeding. This will make any landholder's attempt to secure "make good" actions from Santos next to impossible and is unacceptable. A baseline of the pressure, height and quality of water in the overlying productive aquifers must be established.
- The appended reviews should be read in conjunction with each other. Hayley's review was strictly limited to the adequacy of the model and its inputs and is augmented by the detailed local knowledge and knowledge of research literature relevant to the local area in Broughton.
- Andrea Broughton's expert review (Appendix C) provides detailed responses to Santos's EIS for the Narrabri Gas Project which provide specific information as to lack of data, paucity of modelling and predictions based on a model with a low level of confidence.
- Dr Matthew Currell (Appendix B) found that the risk of ground and surface water contamination as a result of the gasfield activities is high, and the potential impact of this contamination severe, given the unusually high quality of water in the Pilliga sandstone, the unusually poor quality of water in the target coal seams and the high rate of spills and leaks evident in research into unconventional gas drilling in several states in the US.
- Currell also found that there was little to no consideration of fugitive gas migration into aquifers overlying the target coal seams, posing a groundwater contamination and safety hazard as well as a greenhouse and air pollution risk.
- These are important risks, identified early by local communities that could lead to detrimental impacts to the environment and/or water users, if not appropriately managed. Decision-makers reviewing the EIS should carefully evaluate these risks, given the reliance of agricultural industries and communities on good quality and available groundwater. We seek assurance from the Department of Planning that the problems, data gaps and inadequacies identified in these reviews will be addressed in full.
- Section 7.6 of Appendix F Part 1 refers to make good provisions "that *may* be followed" (our emphasis) and these appear to only be offered for "unanticipated consequences."
- In the absence of baseline data on water being provided with the EIS, this commitment is worth nothing. It will be impossible and expensive for landholders to have to demonstrate that the water loss they experience is a result of the gasfield and this wafer-thin "commitment" to make good any losses is no commitment at all.

Social and economic

- Rigorous community-based, neighbour to neighbour, surveys have been diligently conducted by individual communities for over four years across our North West region. Community survey teams visited every house in their district, to invite residents to respond to the question, "Do you want your land/road gasfield free?" To date, over 100 communities in the North West have overwhelmingly rejected gasfield expansion on their lands and rural communities.

- Comprehensive data from these surveys has been carefully collected and collated. Community survey teams were diligent in visiting every house in their locality, with an overwhelming response: 96% of respondents want their homes, farms and communities gasfield free. To express their determination and solidarity, these communities have subsequently declared themselves gasfield free “by the will of the people” in an area covering 3.28 million hectares encircling the Pilliga, across nine local government areas.
- Six local government areas in the North West region have adopted moratoria in regard to coal seam gas and associated infrastructure.
- The social impacts of this gasfield are of profound concern to our network and have been inadequately described and assessed in the EIS. Lockie (Appendix F) found that the report is not transparent with the evidence on which claims about social impact significance, likelihood and consequences are made.
- Lockie concluded that the impact predictions and mitigation measures proposed in the SIA could not be comprehensively reviewed because insufficient detail has been provided outlining how impact significance has actually been assessed.
- We are very disappointed in the Social Impact Assessment in the EIS and its failure to address the new guidelines for such assessments prepared by the Department of Planning. Much of the information is out of date and inadequate consultation has been undertaken to discuss the ramifications of this project with people in Narrabri and surrounding districts.
- A review by The Australia Institute of the economics sections of the EIS found that it has heavily understated the costs of the project and is misleading (Appendix D).
- We do not believe that the operation of the world-renowned Siding Spring Observatory should be put at risk by the introduction of coal seam gas into the region, given the spatial intensity of the industry, its use of flares and the likelihood that one gasfield will be the beginning of further CSG expansion in the region.

Biodiversity

- A review of the ecological assessment and impact on vertebrate fauna by David Milledge (Appendix G) found that the EIS does not provide an appropriate and adequate assessment of the likely impacts of the project on vertebrate fauna, particularly threatened species.
- Specifically, Milledge asserts that the importance of the Pilliga forest and woodland nationally, and the severe environmental stress it is already experiencing, have not been given adequate consideration. In addition, the small number of species recorded means the EIS has failed to identify areas and habitat features of importance to local populations of endangered species.
- We believe that the threatened species flora surveys have also been inadequate and weed threats had been poorly considered. Decisions of this gravity, establishing a huge unconventional industrial gasfield in forest and farmland near a growing regional town cannot be made on the strength of the meagre data gathered for this EIS.
- We note that ecologist David Paull has also identified serious omissions and inadequacies in methodology of direct and indirect impacts and survey deficiencies for some key fauna species. Specifically, the assertion that there are no koala in the study area (despite 3 independent studies finding evidence) is not supported, though we concede that Koalas are under considerable stress in the Pilliga and should therefore be granted the highest possible protection and care in management of their habitat.
- Ian Campbell (Appendix E) reviewed the Aquatic ecology assessment and found that the EIS failed to conduct adequate aquatic ecology surveys and analysis. In particular, targeted surveys are required for the critically endangered river snail *Notopala sublineata*. He also found glaring problems with the water quality assessment.

Waste, toxics and pollution

- We provide a review of the produced water and waste assessment of the EIS by Associate Professor Stuart Khan.
- Khan notes that expressing salinity as electrical conductivity introduces significant uncertainty about the actual concentrations of salt in the produced water. This information should be provided.
- Khan also identifies that the EIS has clearly identified or discussed the risk of brine pond leakage which has the potential to lead to mobilisation of metals in soil, including uranium.
- Santos proposes to irrigate with treated produced water, but the treatment process does not appear to include removal of metals and other contaminants. We note that AGL was forced to abandon a CSG wastewater irrigation trial in Gloucester because of unacceptably high levels of salt and heavy metals.
- There is no indication that any treatment disposal mechanism or licenced facilities exist that have capacity to take the solid salt waste produced by the water treatment plant, nor any analysis of the chemical composition of this waste. There is no information about how much of this salt will be stored at any one time at the Leewood site.
- Khan identifies landfill of salt waste brings potential of seepage of saline leachate to ground and surface water and that such storage must be maintained permanently, saying there is considerable likelihood of such a facility contaminating groundwater and surface water over the long term. This is not discussed at all in the EIS.
- There is no chemical analysis provided of the water that has already been brought to the surface as part of Santos' drilling activities in the Pilliga.
- We believe that the use of flaring poses unacceptable air quality risk and poses the unacceptable serious bushfire risk. We also believe the Rural Fire Act should be changed so that the petroleum industry must adhere to local fire conditions set by the RFS, and not flare in conditions above high fire danger.
- Given that the US EPA has banned flaring and that this practice produces toxic air pollutants, we seek the Department's support in ensuring there will be no flaring used at this gasfield and that other means will be used to deal with gas.
- The EIS notes that the project is considered to be a potentially hazardous industry due to large volumes of Class 2.1 flammable gases being present i.e. methane. The EIS notes that there is a medium risk of fire and explosion resulting in a large scale bushfire. This is an unacceptable level of risk to the community.
- Santos refer to a "health impact assessment" in the EIS but there is no health impact assessment in evidence, rather there is initial evidence of identification of areas to screen. It is frankly appalling that a document purporting to be or contain such an assessment would be exhibited by the Department of Planning for a coal seam gas project, given the known and suspected health impacts of unconventional gas.
- The NSW Chief Scientist's report into CSG found that there are human health risks at all stages of CSG extraction, with exposure via water, soil and air pollution and health effects including respiratory, cardiovascular and reproductive effects.
- Crucial work identified by that report has not been completed, including creation of an insurance mechanism and work to identify exposure pathways that affect human health. Meanwhile, considerable additional evidence has been documented in peer-reviewed studies demonstrating the health effects of unconventional gas.
- The National Toxics Network submission includes myriad specific questions and problems with the way chemicals and the risks associated with drilling, handling, recovery and disposal are dealt with

in the Environmental Impact Statement that the members of the North West Alliance likewise want addressed.

- Gas migration is a serious issue for coal seam gas operations and recent research has indicated that it may be dramatically underestimated. We urge the Department to seek independent analysis of this risk as there is little to no evidence that the EIS has adequately dealt with it.

Aboriginal cultural heritage

- We include in the appendices a review of the Aboriginal cultural heritage assessment and management plan by Peter Kuskie.
- Kuskie raises serious problems with the approach taken by Santos in mapping and modelling cultural heritage significance and recommends that the mapping should be set aside.
- We note deficiencies identified in the consultation process, the transparency of Santos' assessment and in the proposed management plan.
- We believe that decisions about the protection and management of Aboriginal cultural heritage should be in the control of Gomeroi people and urge the Department of Planning to ensure that there is free and informed consent by Gomeroi people in decisions about the management of the Pilliga.

The points above are a summary of the material provided to the North West Alliance in review of Santos' Environmental Impact Statement. The detailed reviews are attached and we look forward to each of them being addressed in detail by the Department of Planning and Santos.

Appendix A: Kevin Hayley, Groundwater Solutions, review of the numerical groundwater modelling component of the Narrabri Gas Project EIS.

Appendix B: Dr Matthew Currell, review of ground and surface water quality

Appendix C: Andrea Broughton, review of groundwater impact assessment

Appendix D: Rod Campbell for The Australia Institute, review of economic impact assessment

Appendix E: Ian Campbell, review of aquatic ecology assessment

Appendix F: Prof Stewart Lockie, review of social impact assessment

Appendix G: David Milledge, review of vertebrate fauna

Appendix H: Ass Prof Stuart Khan, review of produced water management and waste

Appendix I: Peter Kuskie, review of Aboriginal cultural heritage and management plan