

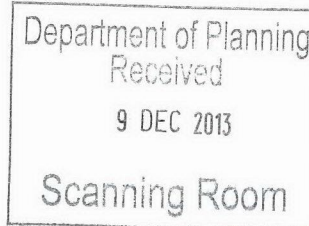


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Our Reference:
Your Reference:
Contact Name:
Telephone:

ID276139:PB:MR
SSD SSD 13_6038
Mr Paul Bawden
(02) 6799 6855

Ms Jessie Giblett
NSW Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001



5 December 2013

Dear Ms Giblett,

Re: Narrabri Shire Council Submission on the Dewhurst Gas Exploration Pilot Expansion Environmental Impact Statement (SSD SSD 13_6038)

1 Introduction

Santos NSW (Eastern) Pty Ltd (Santos) proposes to expand its gas exploration activities in Petroleum Exploration Licence (PEL) 238. The proposed activities are described in the Dewhurst Gas Exploration Pilot Expansion Environmental Impact Statement (the Dewhurst EIS) that is on public exhibition until 9 December 2013. The proposed activities include:

- drilling six horizontal wells at Dewhurst 16H, 17H and 18H and installing surface infrastructure including a flare (Dewhurst 13-18H Pilot); and
- drilling two wells at Dewhurst 30 and 31 and installing surface infrastructure including a flare (Dewhurst 26-31 Pilot). The wells will be operated for up to three years.

The Dewhurst 13-18H Pilot site is on freehold land and Crown Land road reserve, approximately 25 km south of Narrabri. The Dewhurst 26-31 Pilot site is in the Pilliga East State Forest, approximately 44 km south of Narrabri.

The project is classified as a State Significant Development and will be assessed under Part 4 of the *Environmental Planning and Assessment Act 1979*. The wells and associated activities are all within Narrabri Shire Council local government area (LGA).

It is understood that the proposed activities are required to determine whether a commercial coal seam gas (CSG) production project is viable. The EIS does not describe these commercial activities and the Council's comments only consider the Dewhurst Gas Exploration Pilot Expansion project described in the EIS. The Council will provide comments on any proposed commercial project at the appropriate time based on the assessment for the commercial project.

2 Assessment process

The Dewhurst Gas Exploration Pilot Expansion EIS replicates much of the information provided in the Bibblewindi Gas Exploration Pilot Expansion EIS that was on public exhibition until 7 November 2013. The Council provided a submission on the Bibblewindi EIS. Given the replication in the EISs, many of the comments in this submission replicate the Council's previous submission.

The review of multiple EISs for closely related projects is an inefficient use of the Council's limited resources. The Dewhurst EIS (Table 5-2) explains that Santos provided separate EISs for Bibblewindi and

Dewhurst to reflect the staggered drilling program and the evolving exploration and appraisal program and that the two EISs consider activities with different levels of impact on native vegetation. The Council requests that the Department of Planning and Infrastructure considers the best methods for the assessment and determination of these types of ongoing exploration so that the council does not need to prepare multiple submissions on activities that are very similar.

3 Project context

The proposed Dewhurst Gas Exploration Pilot Expansion activities are:

- construction: site preparation; establishing equipment and infrastructure to connect the wells to the existing gas gathering system; and drilling eight wells employing up to 11.2 people (full time equivalents, FTEs) over about 23 weeks;
- operations: operation of the wells (water extraction and gas recovery); water management and maintenance employing up to 2 people (FTE) for up to three years; and
- decommissioning and rehabilitation within six months of abandonment.

Based on the EIS, the sites will be within or close to existing well sites and existing access roads will be used.

Approximately 2.44 ha of White Cypress Pine-Bulloak-ironbark woodland of the Pilliga area of the Brigalow Belt South Bioregion will be cleared.

The Dewhurst 13-18H Pilot site is predominantly within land that has been mostly cleared for low intensity stock grazing. The EIS states that no commercial farming activity currently takes place on the site. The Dewhurst 26-31 Pilot site is on uncleared land in the Pilliga East State Forest.

Based on the EIS, the nearest residence is approximately 500 m south of the Dewhurst 13-18H site. This is being leased by Santos until December 2015 and will remain vacant. The next closest sensitive receiver is a residence approximately 1.8 km south-west of the site. The nearest residence to Dewhurst 26-31 is about 11 km north of the site.

4 Socio-economic factors

The EIS (Section 18.3.1) identifies the following local and regional socio-economic benefits of the project:

- direct employment opportunities for 11.2 FTE positions (8.3 of these fly-in fly-out) during construction and 2 FTE positions during operations; and
- an estimated spend of \$150,000 per employee per annum.

The EIS also indicates that due to economic multipliers, the project will create \$15.2 million leading to the creation of 24 indirect jobs in the local or wider economy.

Given that the majority of employment will be during the 23 weeks of construction; that specialised personnel and equipment will be used; and that the drillers will be accommodated in the Westport driller's camp, the Council seeks Santos' ongoing efforts to ensure that a significant portion of the identified socio-economic benefits of the project will accrue in the local economy.

The project will:

- source potable water from Narrabri's town water supply;
- dispose of general and recyclable waste to Narrabri's landfill and recycling facilities; and
- most likely dispose of small quantities of sewage to the Council's sewerage system.

The EIS does not propose to use local roads maintained by the Council other than Mooloolbar Street and Yarrie Lake Road to access the Narrabri Operations Centre from the Newell Highway. Traffic travelling to and from the sites will use the Newell Highway (a State road) and unsealed forestry roads.

In summary, there will be few socio-economic benefits realised within the NSC LGA. However, the socio-economic impacts of the proposal are also small (EIS Table 18-1).

The Council recognises the contributions Santos is making to the community and encourages ongoing local employment, social infrastructure provision and Santos' buy local program.

5 Groundwater

The EIS (Chapter 9) assesses the potential cumulative impacts of the Dewhurst Multi-Lateral Pilot on groundwater. Potential impacts during construction and operations as well as the proposed monitoring program are discussed below.

5.1 Potential construction impacts

The EIS identifies the following potential impacts to groundwater during well construction:

- increased vertical connection between deep and shallow aquifers/saturated strata, potentially leading to contamination of good quality groundwater by poor quality groundwater;
- contamination of the aquifers by drilling fluids if these are lost from the drill hole into the surrounding strata; and
- contamination of groundwater due to spills of oil, fuels or chemicals if they occur and are not cleaned up appropriately.

Given that the drilling will be designed and constructed in accordance with the *NSW Coal Seam Gas Code of Practice - Well Integrity* (Department of Trade & Investment, Regional Infrastructure & Services, Resources & Energy, September 2012), the proposed construction mitigation measures appear adequate to minimise the risks of impacts occurring. However as described below, further assessment of project-specific impacts to groundwater is required.

The EIS (Section 9.1.4) provides a summary of existing groundwater quality based on samples collected in the Gunnedah and Narrabri region but does not provide an assessment of the impacts of the project on this water quality. This is a significant omission given that impacts to groundwater quality are one of the areas of greatest community concern.

The Bibblewindi EIS Executive Summary stated that "All chemicals used during drilling will be non-toxic". The Council's submission on this earlier EIS pointed out that this is incorrect based on the list of drilling chemicals additives provided EIS Table 4-3 of the Bibblewindi EIS that includes chemicals that are toxic.

The statement has been removed from the Executive Summary of the Dewhurst EIS but similar statements remain in sections 8.2.2.2 and 17.3.2. This raises two issues. First, stakeholders rely on the accuracy of statements in the EIS to understand the potential impacts of the project and that these statements regarding the additives are, at best, unhelpful. Second, an assessment of the potential impacts of the project on water quality has not been undertaken and is required.

The ecotoxicity of a chemical (or mixture of chemicals as occurs in drilling fluid) will depend on its concentration in the environment. **An assessment of the impacts of drilling on groundwater quality needs to be undertaken to determine whether drilling fluids will be released to the environment at toxic concentrations.** This may be as simple as determining whether the toxic drilling additives will be diluted to non-toxic concentrations during use. If this is not predicted to occur, an assessment of the additional dilutions in the environment before the additives no longer pose a threat to the environment and the distance that this occurs from the drill hole is required. This will provide a scientific basis on which to assess potential impacts of the project on water quality.

5.2 Potential operations impacts

The EIS considers the potential groundwater drawdown during operation of the wells based on groundwater modelling presented in the *Groundwater Impact Technical Report* (EIS Appendix 3). The first step of groundwater modelling is to prepare a conceptual groundwater model. This conceptual model is not presented in the EIS so the adequacy of the groundwater model cannot be reviewed. This review is essential as the modelling assumptions (EIS Appendix 3 Section 3.3) indicate that assumptions were made regarding groundwater recharge:

Recharge to the Maules Creek and Black Jack Group is required to be able to model the observed high groundwater pressures. Recharge is likely to be via vertical infiltration through the Boggabri Volcanics at outcrop. Recharge in the model was implemented by adding a basement flux to the bottom layer of the model. Although this has allowed a more reasonable calibration to the deeper Drill Stem Test (DST) pressure measurements, it has also resulted in groundwater mounding where the Permo-Triassic strata of the Gunnedah Basin outcrop. (EIS Appendix 3 Section 3.3).

The Council seeks further information on the conceptual groundwater model and the assumptions made in the groundwater modelling.

Depressurisation of the lower part of the deepest and less productive Gunnedah-Oxley Basin Groundwater Source is predicted to occur. The EIS reports that there are no known bores extending into this lower porous groundwater source in the Exploration and Appraisal Program area (covered by Petroleum Assessment Lease 2 and Petroleum Exploration Licence 238). Bore census information is not presented in the EIS to verify this conclusion. **A recent bore census covering all of the Exploration and Appraisal Program area needs to be provided.**

The EIS (Section 9.4.4) considers the registered extraction bores within 5 km of the wells. However, the predicted 2 m drawdown extends about 10 km from the wells (Figure 4-3 of EIS Appendix 3). **All bores within the potential drawdown area should be identified and potential impacts quantified.**

While the EIS's conclusion that there will be no significant impacts to groundwater pressure or flows may be correct, this will need to be confirmed as part of a rigorous groundwater monitoring program.

5.3 Groundwater monitoring

A hydrology and water quality baseline monitoring program should be implemented as part of the program that covers all aquifers potentially impacted by CSG production, including shallow aquifers.

This baseline monitoring program should cover the full extent of the potential commercial CSG field, including all major strata, and should occur over a sufficient duration to characterise each layer. The baseline monitoring should include the measurement of water levels, pressure and water quality parameters (see below). This will be essential in assessing any proposed CSG production project. It will also be essential if a CSG production project is developed.

The EIS (Section 9.5.3) states that "Santos is currently implementing a comprehensive groundwater monitoring program. This program was presented and discussed with the NSW Office of Water and was approved by the OCSG [Office for Coal Seam Gas] on 9 July 2013." The EIS does not explain this program or its relationship with the groundwater monitoring proposed in the EIS or its role (if any) as a baseline for a future CSG project. **The Council seeks the opportunity to review the proposed groundwater monitoring program.**

EIS Section 9.5.3 describes the installation of eight shallow and one deep groundwater monitoring bores "over the next 12 months". One deep bore is insufficient to monitor groundwater levels and flow direction. **Further deep monitoring bores should be installed, or if they already exist, they need to be incorporated into the Dewhurst Gas Exploration Pilot Expansion monitoring program and this needs to be described.** The bores should be installed, monitored and sampled prior to the start of the Dewhurst Gas Exploration Pilot Expansion operations with sufficient time to collect baseline data prior to the start of operations – not sometime in the next 12 months. The monitoring should continue over the life of the project and until the pre-existing groundwater pressures and flows return.

Groundwater quality monitoring is mentioned in EIS sections 9.5.1 and 9.5.2 but very few details are provided (eg monitoring parameters, frequency or duration). **The Council requires further information to determine the adequacy of the monitoring program particularly given the acknowledged potential for mixing between aquifers causing contamination of shallower aquifers containing high quality water and the communities concerns regarding the use of drilling chemicals.** The water quality monitoring program should include parameters indicative of contamination of groundwater by drilling fluids and vertical flow of groundwater. The Council seeks that the monitoring suite includes: pH, electrical conductivity, major ion, fluoride, silica, dissolved metals, nutrients, dissolved gasses, hydrocarbons and isotopic analysis. Monitoring must be undertaken using sampling protocols that have been approved by an appropriate agency, eg OCSG.

The successful use of monitoring results in an environmental management program is dependent on the use of predetermined trigger values that have are based on robust baseline data. **The Council seeks further information on the baseline monitoring results and the proposed trigger values when contingency measures will be implemented.**

The EIS does not contain information on the contingency measures that will be implemented if monitoring shows trigger values are exceeded. **The Council seeks information on the proposed feasible contingencies.**

5.4 Fracking

The EIS (Section 9.2) states "There are no plans to use the process of hydraulic stimulation (also known as hydraulic fracturing or fracking) within the E&A Program." Should this change, ie fracking is proposed, it should first undergo a thorough separate assessment. **The Council must be provided with an opportunity to review and comment on any proposal for fracking.**

5.5 Bibblewindi Water Transfer Facility

The transfer of produced water to the approved Bibblewindi Water Transfer Facility, without using the existing ponds at the facility and from there to a licensed facility in the Sydney metropolitan area is supported. **The start of the project should be conditional on the completion of the Bibblewindi Water Transfer Facility.**

6 Other potential impacts

The new areas of physical disturbance will be small and no surface water releases are proposed. It is a reasonable conclusion that there will be no significant direct impacts to surface features (eg heritage or surface water) other than the impacts of vegetation removal. The EIS proposes reasonable safeguards to prevent accidents impacting these surface features. Similarly, the conclusions regarding noise and air quality appear reasonable.

7 Consultation

Most recently, Santos met with NSC Officers on 19 November 2013. The Council appreciates the opportunity to discuss the project directly with Santos and looks forward to future discussions as part of Santos' commitment to consult with the Council monthly, including providing project and schedule updates (EIS Table 20-1).

The environmental and safety (eg gas blow-out) risks of CSG exploration and production are increasingly understood. To allow it to better inform the community, the Council seeks further information from Government on these risks based on CSG development in Australia. Useful information would include a summary of CSG development in Australia, and the number and type of associated environmental incidents. As a minimum, information should be provided regarding environmental incidents that have occurred as part of CSG exploration in the region and how implementation of the controls presented in the EIS will prevent reoccurrence.

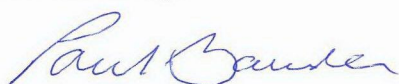
8 Closing

The Council appreciates the opportunity to comment on the EIS. Further information is sought to inform the Council and the local community of the potential impacts of the project, particularly the monitoring and contingency measures that will safeguard the LGA's environment from unanticipated impacts.

We trust that the Department of Planning and Infrastructure (and the Planning and Assessment Commission if making a determination) will carefully review the Council's submission on the project in its assessment and attach appropriate conditions to any Project Approval.

The Council would welcome the opportunity to discuss the Council's concerns with the Department and the Commission.

Yours sincerely,



Mr Paul Bawden

DIRECTOR PLANNING AND DEVELOPMENT