

Submission on Dewhurst Gas Exploration Pilot Expansion (Santos NSW Pty Ltd and Energy Australia Narrabri Gas Pty Ltd.)

David Paull
974 Newell Highway
Coonabarabran

8 December 2013

Thank for you for the opportunity to make a submission on this Environmental Impact Statement (EIS).

I am a landowner in the Pilliga and have grave concerns about this proposal because of impacts on water, threatened species, groundwater dependent ecosystems and on its contribution to carbon emissions.

I understand that an EIS was required because under Schedule 1 of the State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP) that development for the purpose of drilling or operating petroleum exploration wells, not including 'a set of 5 or fewer wells that is more than 3 kilometres from any other petroleum well (other than an abandoned petroleum well) in the same petroleum title' is State Significant Development. Though I also understand that the Department's REF Guideline (ESG2 2012) state that an EIS is required where a development was likely to have a "significant impact on the environment". So is it right that I may assume that any development meeting the SEPP criteria is likely to have a significant effect on the environment?

I will show that due to the insufficiency of information provided, the matters that should have been considered have been insufficiently considered and should be rejected by the Department.

significantly affect threatened species, populations, ecological communities, or critical habitat, in which case a Species Impact Statement (SIS) is required.

I understand that the action will consist off the following activities:

- construction: site preparation activities at existing and new well lease areas; establishment of necessary equipment, temporary structures and facilities on the lease areas to enable drilling; re-entering three existing wells to convert single horizontal wells to triple-stacked horizontal wells at Dewhurst 13-18H;
- drilling one vertical well (Dewhurst 30) and one triple-stacked horizontal well (Dewhurst 31);
- construction of a flare at Dewhurst 14 and 28; and construction of associated surface facilities and gathering systems operation: operating the expanded Dewhurst 13-18H and Dewhurst 26-31 pilots for a period of up to three Dewhurst Gas Exploration Pilot Expansion
- Environmental Impact Statement (EIS) years, management of the water and gas produced during operation and general maintenance activities
- post operation and rehabilitation: decommissioning and rehabilitation of pilot wells and ancillary infrastructure or suspension of wells for potential future use.
- Additional clearing - Approximately 2.2 hectares of vegetation will be cleared from within the construction footprint at each of the well sites at Dewhurst 26-31 as part of the proposed activity.

I am opposed to this action for the following reasons:

- **Work has already commenced.** Work is currently being undertaken even prior to submission period closing. This is not a transparent process and not consistent with how development process is undertaken in NSW.
- **EIS does not consider cumulative impacts.** The EIS states that; “The proposed activity is temporary and minor in scale”. This is a misleading statement, as the EIS also says; “The proposed activity forms part of the Energy NSW CSG Exploration and Appraisal Program (E&A Program). The program consists of a series of CSG exploration and appraisal activities within PEL 238 and PAL 2 including recommencing operation of a number of existing pilot wells, drilling and operating new pilot wells and constructing and operating water and gas management facilities to support the program.” The program being undertaken is part of a larger gas field development, as statements by the proponent and data from the Department of Minerals and Energy has shown (see attached figure). As this and the enormous capacity of the Leewood Ponds indicates, this proposal is part of a large gas field in the Pilliga and the Department of Planning should be aware that this proposal is a minor component of what is intended by the proponent.
- **EIS does not consider Tier 1 Biodiversity areas.** While the EIS states that; “The two pilot sites are not located on or near Biophysical Strategic Agricultural Land (BSAL) and/or a Critical Industry Cluster (CIC) as defined in the Strategic Regional Land Use Plan – New England North West (DP&I, 2012a). The nearest mapped BSAL is approximately 10 kilometres east of Dewhurst 13-18H and no CIC has been identified in the New England North West Region.” However under the draft North West SRLUP, the Bohena Creek catchment was mapped as being a Tier 1 Biodiversity area, due to the presence of moderate probability groundwater dependent ecosystems. Why has this information been left out for consideration by the EIS?
- **Groundwater and GDEs.** The EIS states that; “During operation, the expected groundwater extraction is estimated to be 331,121 and 413,801 cubic metres over three years for the operation of Dewhurst 13-18H and Dewhurst 26-31 pilots, respectively. The maximum rate of extraction is expected to be approximately 448 cubic metres per day (at Dewhurst 26-31), with the average 302 and 378 cubic metres per day, respectively. The target coal seams are located at a depth of approximately 900 to 1000 metres. A cumulative groundwater impact assessment for the E&A Program, incorporating the Dewhurst 13-18H and Dewhurst 26-31 pilots, was undertaken assuming concurrent operation of all existing and proposed pilot wells. No significant decline in groundwater level or change in flux within the alluvial groundwater sources of the Upper and Lower Namoi alluvium (NSW Upper and Lower Namoi groundwater source water sharing plan) or the Great Artesian Basin (GAB) Surat Pilliga Sandstone (NSW GAB groundwater source water sharing plan) is indicated by the modelling of the CSG water extraction activities.”

I share the concerns voiced by the NSW Office of Water and Narrabri Shire Council in that the adequacy of the water testing has not been demonstrated and a lack of effective water monitoring bores has hindered any real baseline criteria from being established. What is a

“significant decline” and what impacts are these likely to have on GDEs? This matter has not been addressed adequately as have the potential impacts on surface GDEs that occur in the area. The Pilliga sandstone is highly porous, and deeper depressurisation may have the potential to cause declines in the water table and significant impact on the overall flux of the underground water systems.

Impacts to stygofauna in the alluvial and deeper aquifers have been poorly addressed. The EIS states that sampling found the stygofauna to be poor, this does not reflect the data obtained from a nearby property by Stygoecologia that new species were discovered. NO analysis of the impacts on Troglofauna has been discussed. Data found indicate that the aquifers associated with the Pilliga Sandstone are unique and poorly known.

- **Surface water.** The pilot program is to commence prior to the Leewood ponds being put into production. In the meantime, water is stored onsite in temporary facilities or trucked to unknown location for storage. Excessive handling of the water onsite will lead to increased risk of spillage and contamination of water sources and surface drainage. Previous experience from spillage onsite has contaminated water sources, such as Bohena Creek with toxic metallic salts, carbohydrate compounds and anaerobic bacteria.

The EIS states that; “Bohena Creek and its tributaries are ephemeral watercourses that do not form significant topographical features within the landscape”. This is quite an uninformed assessment of this creek, which is clouded by very little understanding of the ecological significance of this water course, as it the most important drainage in the eastern Pilliga and upstream sections contains a number of baseflow springs. Because it doesn’t have permanently flowing water, doesn’t detract from its significance as the main feeder for groundwater dependent ecosystems in the wider project area. Table 10-1 shows an increasing electrical conductivity (measure of salinity) in the Bohena system over 2002-2007, though no explanation is provided. Only four monitoring sites have been established (one in a dam) with another 6 ad hoc sites.

- **Bushfire risk.** The proponent states that; “Excess gas will be flared however flare capacity has increased from 2 million m³ to 5 million m³.” This has been poorly addressed. If the proponent is to construct such small well sites, then the risk of flaring is magnified. This is compounded by the location of some existing flares quite close to the boundary of the well site. What precautions and response plans have been set in place to counter this real threat. Bushfire in this area will pose a significant threat to wildlife and the gas well sites themselves.
- **Threatened Biodiversity.** The REF states that; “A number of flora and fauna species (including migratory species) listed under the TSC and EPBC Act are considered to have the potential to occur within the two pilot sites and their immediate surrounds. A seven-part test and an Assessment of Significance were applied to those species listed under the TSC and EPBC Act, respectively. The assessments concluded that the proposed activity is not likely to have a significant impact on any of these species.”

Again this is a misleading statement, while the EIS states that only 2.2 ha of public forest will be cleared in association Dewhurst wells 26-31. This is doubtful, because if any of the current wells are examined, each site is approximately 1-2 ha in size. In addition what of the clearing associated with connecting access paths and the pipelines? In addition it is proposed that all produced water and waste will be trucked out of sites while the Leewood Ponds are being put not production. This will cause increased risk to wildlife through collisions.

With respect to the vegetation community at the proposed well sites, only one is identified. What is not provided is the breakdown of quadrat data at each of the sites showing species present and dominants in each of the structural layers. Given some of the sites have different topographical situations, this is key information for being able to undertake impact assessments.

With respect to threatened species detected during field surveys, the low number observed relative to the high number of potentially occurring species, shows that insufficient effort and survey techniques have been made undertaken. Particular reference is made to the Black-striped Wallaby, Pilliga Mouse, Koala and the Eastern Pygmy-possum, all of which were detected in habitats within and adjacent to where well sites are proposed. These species were detected in surveys conducted by the Northern Inland Environment Council in 2011. Table 11-3 does not even identify the understorey shrubs which are key habitat features for Pilliga Mice and Eastern Pygmy-possums. Elliott trapping was not undertaken by ELA at all of the proposed well sites (only 2) out of the 6 proposed in the Dewhurst 26-31 field.

Three threatened flora species were detected on or near the proposed well sites, though no assessment was made of the extent of these populations in the local area, so the impact assessment on these species is insufficient.

An assessment was made on potential Koala habitat in the study area (the wider impact area). The Ecological Assessment incorrectly states that there are no feed trees listed under Schedule 2 of the SEPP 44 present. This does not take into account Fuzzy Box (*Eucalyptus conica*) which is listed and present along Bohena Creek. No reference is made to the NSW Koala Recovery Plan (2008) or a key scientific paper (Kavanghet *al.* 2007) which identifies Red gums (*E. chloroclada*, *E. blakelyi*) and Pilliga Box (*E. pilligaensis*) as being key food trees for the Koala and both of which are present in the study area.

Appendix 4 outlines the 7 Part tests undertaken for 33 potentially occurring threatened fauna species, however 7 Part tests as such have not been undertaken, rather a summary is presented. This summary does not take into account the range of potential impacts on threatened species, or potential impacts within the study, rather an assessment is made only of the dispersive ability potential habitat within the "region".

The Pilliga Mouse was judged not to have breeding habitat within the well sites, although records from the NSW Wildlife Atlas indicate clusters of records near one of the Dewhurst sites. No definition of breeding habitat is given, though recent information (Paull *et al.* in

press) indicates that breeding habitat is present throughout the wider gas field area and may also occur on several of the sites. This information was made available to the proponent upon a request received from the Commonwealth Environment Department and was also available in the NIEC report on the survey undertaken in 2011.

The Black-striped Wallaby's presence in the northern Pilliga was confirmed in surveyed undertaken in 2011, near the Leewood Ponds site and there are previous records from near the Dewhurst 13-18 well sites. This species covers in thick bush during the day but moves out to feed in grassy areas at night. No impact assessment was made of the impact of wildfire, increased feral predator penetration or traffic collisions. This species is highly endangered and the northern Pilliga / Brigalow Park NR support one of the most important populations in NSW.

The Eastern Pygmy-possum was trapped in heathy understorey woodland during the NIEC 2011 survey and may have potential habitat within the well sites. This has not been considered.

Given the lack of appropriate survey effort, lack of detailed data on the plant species and communities present on the sites, lack of reference to the previous work and the scientific literature and lack of consideration of the range of potential impacts within the context of the cumulative impact, the impacts assessment for these and other species is insufficient to determine significance.

No offsets have been required for the development. The proponent states that; "biobanking" is not considered necessary due to the relatively small magnitude of impact, the short timeframe of the operation of the proposed activity and the recommended rehabilitation following completion of operations." While the magnitude of the works has been understated, (cumulative impacts amount to 237.4 hectares), the rehabilitation of the sites is questionable. Please refer to the rehabilitation of the Number 2 bore site and other previous well sites. Rehabilitation has consisted of removal of the topsoil (and seed bank), covering with mulch and placement of non-hollow logs. The proponent has shown no capacity to undertake successful rehabilitation of the sites and so the loss of revegetation must be considered a 'net loss' and requiring offset.

- **Greenhouse Gas emissions.** Santos does not appear to have any understanding of fugitive emission for this project. This is despite extensive work in Queensland. This is a serious omission from the Greenhouse gas impact and may seriously under-estimate total emissions. It is not good enough just to include a monitoring program with no undertaking on what actions may be required should levels become unacceptable or even what threshold these levels would be; "Minor amounts of gas will also be lost to the atmosphere as fugitive emissions during well development and operation, as well as from the gas gathering pipeline network and associated equipment. To assist in quantifying the extent of fugitive emissions across the E&A Program, a monitoring program, including baseline monitoring, will be implemented".

Sincerely

David Paull

References

Kavanagh, R.P., Stanton, M.A. and Brassil, T.E. 2007. Koalas continue to occupy their previous home-ranges after selective logging in *Callitris*–*Eucalyptus* forest. *Wildlife Research* 34: 94–107

Mineral Resources Environmental Sustainability Unit (2102). ESG2: Environmental Impact Assessment Guidelines: For exploration, mining and petroleum production activities subject to Part 5 of the *Environmental Planning and Assessment Act 1979*. Department of Trade, Investment, Regional Infrastructure and Services.

Paull, D.C., Milledge, D.R., Spark, P., Townley, S. and Taylor, K. (in press, *Australian Zoologist*). Identification of important habitat for the Pilliga Mouse *Pseudomys pilligaensis*.

Figure. Santos proposed CSG field (source: Department of Minerals and Energy)

