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Submission detailing our objection to the proposed expansion of Santos coal seam gas operations at the *Dewhurst 13-18H and Dewhurst 26-31 pilots, and operation of both expanded pilots for up to three years within Petroleum Exploration Licence 238.*

The members of the Northern Inland Council for the Environment strongly object to allowing Santos to incrementally increase the number of gas wells in the Pilliga State Forest without having to consider the accumulated impacts of a likely much larger operation. It is obvious from construction of infrastructure at Narrabri that they plan for a much larger number of wells which will destroy extensive areas of the forest and render much larger areas disturbed by edge effects.

Santos must make their intentions clear for what they are proposing to do in the Pilliga and the Narrabri region. A viable gas field operation requires numerous wells as shown in the photos on the next page, that scale of impact on the forest must be assessed before any more development is allowed. Such an impact on the Pilliga State Forest will destroy the forests self-sustaining integrity and habitats for threatened species, it will lead to weed and feral animal invasion, and vast areas disturbed by edge effects from roads, pipelines and well pads.

The Pilliga Forest is the largest remaining unfragmented block of temperate dry forest and woodland in eastern Australia, it is referred to as the Noah's Ark for the conservation of western slopes woodland species. It functions as a key flora and fauna refuge in a landscape largely cleared for agriculture and is recognised as part of a National Biodiversity Hotspot and a globally significant Important Bird Area. There is no other remnant of equal size or integrity that can fill that role to conserve over 30 species that are threatened with extinction. Some of those like the Pilliga Mouse and Pygmy Possum are genetically unique to the forest.

Pilliga SF supports several endangered ecological communities and core populations of many threatened flora and fauna species that include populations of the Koala and one of only three significant populations of the South-eastern Long-eared Bat *Nyctophilus corbeni*. The Pilliga Forest also provides important seasonal habitat for a suite of nomadic and migratory bird species, being a key part of the eastern Australian bird migration system.

In 2011 The Northern Inland Council for the Environment Inc organised a flora and fauna survey of the Bibblewindi project area using volunteer expert ecologists and botanists who donated their time to record flora and fauna.

That survey recorded Nationally Protected Species listed in the EPBC Act including the vulnerable plant *Rulingia procumbens*, the critically endangered ecological community of White Box- Yellow box – Blakely's Red Gum grassy woodland and three vulnerable

vertebrate species of Koala, South-eastern Long-eared Bat, and Pilliga Mouse, and the migratory Rainbow Bee-eater.

Seventeen species listed in the Threatened Species Conservation Act were also recorded which included the Black-striped Wallaby, Pale-headed Snake, Turquoise Parrot, Barking Owl, Glossy-black Cockatoo, Little Eagle, Square-tailed Kite, Speckled Warbler, Brown Treecreeper, Varied Sittella, Little Lorikeet, Diamond Firetail, Grey-crowned Babbler, Eastern Pygmy Possum and Yellow-bellied Sheath-tailed bat. Also known to occur are the Large-eared Pied bat and Eastern Cave Bat.

The impact of loss of habitat, fragmentation of continuous forest, edge effects and invasion of feral plants and animals must have an impact on the territories, distribution and abundance of the threatened species in the Pilliga. There must be independent studies done by conservation biologists and ecologists to determine the likely impacts on all threatened species populations, in particular the Pilliga Mouse, Eastern Pygmy Possum and Barking Owl.

In addition to those impacts on threatened species the impact on ground water and the Great Artesian basin is still largely unknown. Underneath the Pilliga is the Great Artesian Basin which is a crucial water source, there are also shallow ground water aquifers that are likely to be crucial to the health of the vegetation on the sandstone geology.

The Director General requires baseline water table monitoring, however there is still no baseline water study completed for the Pilliga groundwater systems. The aquifer monitoring bores required to do this have not been constructed.

In addition, 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. There must be thorough sampling and testing across the project area to enable modelling of regional groundwater flows and a comprehensive assessment of Groundwater Dependant Ecosystems in the Pilliga region, including the potential impacts groundwater drawdown or contamination may have. The Stygofauna life in the water tables must also be thoroughly studied, to determine and describe the species and community present and identify their real conservation significance.

The Northern Inland Council for the Environment is also concerned about how the highly toxic produced water is to be treated and used, and what is to happen with the tonnes of salt produced. How these issues are to be handled should be thoroughly thought through before any more drilling takes place.

The proposed new Dewhurst wells are part of an exploration program that involves multi-lateral drilling. The drilling through the casing of wells poses a risk to the Great Artesian Basin and other aquifers, as it is very difficult, if not impossible, to seal the junction between the casing and the lateral.

The risk of fugitive emissions on environmental and human health must also be considered in the impact assessment. Baseline atmospheric methane data must be collected to enable assessment of any future potential fugitive emissions. There also needs to be an Independent Health Impact Assessment of north-west NSW to establish baseline health condition and air quality.

The potential for wildfire going through the gas field and the increased risk that the gas field poses must also be considered in the impact assessment. History shows that the Pilliga is highly susceptible to fires, largely due to lightning strikes. Santos must have a clear bushfire strategy, especially for gas flaring which cannot be shut down on catastrophic fire days.

Aboriginal Heritage must also be considered in the EIS as there is a Native Title claim over the project area. Santos must include the Gomeroi Native Title Claimants. The Gomeroi Traditional Owners of the Pilliga and the Narrabri Local Aboriginal Land Council must be included and consulted in the EIS process.

The State Government must require the cumulative impacts of all of the Pilliga gas exploration in the past, present and future to be considered in the EIS. We have no doubt that the scale of gas field intended and not made public, will destroy the self-sustaining integrity of the forest. Public opposition to the expansion of gas mining in the North West is very high; this industry has no public licence to proceed.

The precautionary principle must be applied, there are too many unknown impacts relating to management of waste water, fugitive emissions, public health, fire hazards, pollution of aquifers, lowering of water tables, cross contamination of aquifers, groundwater dependent ecosystems, loss of threatened species habitats, and disturbance and fragmentation of threatened species habitat.

The public have no faith in the current planning process; faith must be rekindled through good planning, such as a serious assessment by an independent scientific institution. Mine consultants cannot be trusted to produce an unbiased assessment of these potential impacts, we have seen false and misleading information used to approve the destruction of Leard State Forest that both state and federal governments overlooked.

The images below help to visualise the potential impact of a gas field in the Pilliga forest, consider an overlay of the gas wells in the top photo put over the Pilliga forest photo below.



Yours sincerely Philip Spark  
President of the Northern Inland Council for the Environment Inc

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

<http://www.theland.com.au/news/agriculture/general/news/pilliga-project-raises-water-concerns/2680665.aspx>