

September 2018 NGPCCC Questions

2. TO SANTOS

2.a. Community Consultative Committees.

The guidelines as posted on the Departments web site state that a CCC that follows the guidelines has to be established as explained in the below extract:

When this code applies

This code will be applied by a condition imposed on all prospecting titles granted, renewed or transferred after 1 March 2016.

Titles issued before this time will continue to be bound by any existing conditions on title relating to community consultation. This may include:

(a) for coal and petroleum titles, compliance with the requirements of the Guideline for community consultation requirements for exploration, as amended from time to time.

(b) for minerals titles, the establishment of a landholder and community liaison program.

Q.a. Has Santos had any “prospecting titles” renewed for PEL238 since 1st March 2016?

Q.b. Has Santos any “prospecting titles” for PEL 238 currently in with the approving Department awaiting approval?

Q.c. If none of the above, can Santos give the dates when any such “prospecting titles” for PEL 238 are required to be renewed?

2b. Income from the Wilga Park Power station

Eastern Star Gas (ESG) derived an income from the sale of electricity supplied from the Wilga Park power station to the NSW electricity grid (this was well documented in ESG Returns and Quarterly Reports).

Q.a. Has Santos derived any, before disbursements/distributions, income return from the sale of electricity from the Wilga Park power station to the NSW electricity grid?

Q.b. If so then where can this be found in the Financial Statements applying specifically to the Narrabri Project and PEL 238, or has Santos recorded this income elsewhere? Please specify where the information is recorded.

2c. Landholders Incentive Fund

From the Santos Fact Sheet called ‘*Working with Landholders*’, Santos intends to set up a Fund equivalent to 5% of Santos’ statutory annual royalty payment to reward landholder’s who host the Santos operation.

https://narrabrigasproject.com.au/uploads/2018/02/Fact_sheet-Working_with_landholders_web.pdf

Q.a. Has the Landholder Incentive Fund been set up?

Q.b. Does this Landholder Incentive Fund need to be registered and follow Guidelines/Regulation similar to the Community Benefit Fund, if so then who will be the overseer of the Land holder Incentive Fund? The same question applies should the Landholder Incentive Fund be exempt from Government Guidelines/Regulation?

The Working with Landholders Fact Sheet gives a general, and at times a very detailed description of what a Landholder can expect from hosting the Santos Operation. As Santos, as well as Eastern Star Gas, have derived income from the supply of gas from wells on private land near the Wilga Park power station with Santos set to derive more income from the gas from the wells on Tintfield, while not paying royalties on this gas:

Q.c.a. Will Santos be paying the Landholder of the land where the six (6) wells of Tintfield field are located, a payment equal to the entitlements as described in the *Working with Landholders* fact sheet?

Q.c.b. If no payment to the Landholder as described in the Santos Fact Sheet “*Working with Landholders*” , is currently being made, then “Why is that the case”?

2d. Fracking

In their response to Santos’ RTS, Hunter New England Health raised a concern around Fracking and that if carried out then a Health study should be done on the possible health effects.

Santos has verbally stated in the past that “There will be no fracking associated with the Narrabri Gas Project”.

Q. Is Santos prepared to put into writing this statement and put the “Fracking Debate” centring on and around the Narrabri Gas Project and PEL 238 to bed once and for all?

2.e Groundwater flow direction.

In the RTS Santos claims that most of the recharge flow into the recharge area of the GAB and ultimately into the GAB itself is from the Warrumbungle’s south east. Yet the recently released GISERA Report, using Santos provided information as in the EIS and from other non-Santos sources states that the recharge flow is from a Eastly direction. The GISERA Report is based on Modelling while the Santos RTS reply is based on Books; neither is based on actual localised recent field studies.

The information in attachment 1, is from the Santos document referred to as *Narrabri Gas Field – Water Monitoring and Modelling Plan*, and shows that Santos RTS is in conflict with or did not consider all aspects of Recharge water direction in their RTS response.

Q.a. Will Santos now commit to the groundwater flow direction monitoring that Santos stated would be done as part of Santos’ Water Monitoring program as stated in the *Narrabri Gas Field - Water Monitoring and Modelling Plan* of 2012, see attachment 2, as well as in the Application and ultimately Approval, for the Dewhurst Pilot Expansion, and other Applications?

Q.b. Why did Santos not do the stated groundwater flow direction monitoring as stated in documentation that formed part of Santos Management Plans and Applications to the NSW Government Department now called Department of Planning and the Environment?

3a Gas Field layout

Q. Is the figure 1, taken from a current GISERA Report, a true and accurate representation of the Narrabri Gas Project - Gas Field for which Santos has provided an EIS in February of 2017 (purple dots are used to indicate the gas wells, black dots are in the main, shallow private stock and domestic bores)?

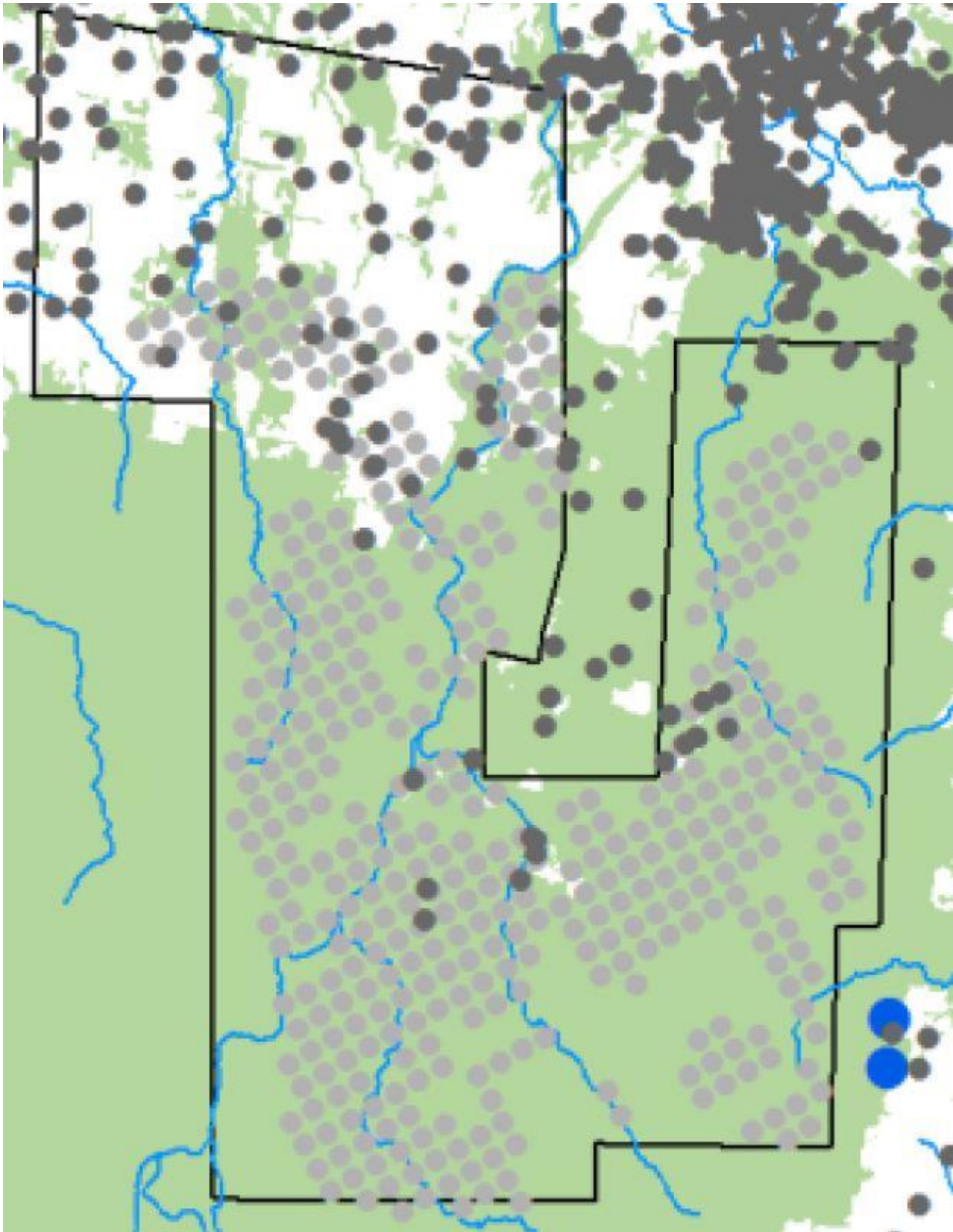
4a Leewood Irrigation

Q.a. When is Santos going to resume irrigating at Leewood as irrigation using treated produced water formed an essential part of the REF “*Leewood Produced Water Treatment and Beneficial Reuse Project*” and the 2017 Narrabri Gas Project EIS, both, in showing that the use of treated produced water had only a low impact on the existing soil and groundwater conditions and that a good monitory return could be made by using this water (business case in REF)?

Q.b. Information to hand concerning the Lucerne Crop cut in January of 2018, is that the crop left the state of NSW and went to Queensland. Will Santos now inform the CCC and the public where this Lucerne went and what it was used for

Q.c. If it was for fodder, what animal was feed the Lucerne and were they in a feed lot type arrangement?

Figure 1



Mr A J Pickard

Delegate for People for the Plains and the wider community to the Narrabri Gas Project CCC

Attachments to Santos' questions

Attachment 1

2.2 Hydrogeology

Currently, groundwater is abstracted largely for irrigation and stock-watering under licence in the Field Area predominantly from the Namoi Alluvium, although a lesser number of bores are completed within the underlying Pilliga Sandstone. From inspection of the NSW Office of Water (NOW) Pineena Database, no bores are known to extend beyond the Pilliga Sandstone or to abstract water from deeper strata in the NGP area. It remains possible that some bores exist that do tap strata beneath the Pilliga Sandstone but it is unlikely given the superior aquifer characteristics of the Pilliga Sandstone over deeper strata.

Groundwater in the Pilliga Sandstone flows primarily from outcrop in the east towards the north west and then west. The Purlawaugh Formation and Keelindi Beds are understood to comprise aquitards, impeding the vertical flow of groundwater. Hence groundwater infiltrating the Pilliga Sandstone outcrop in the east and south east of the Field Area is prevented from percolating into the Purlawaugh and may be confined in the north west by the Keelindi Beds. Locally, groundwater in the Pilliga Sandstone in the northern part of the NGP area may flow northwards, drawn by hydraulic gradients in the Namoi Alluvials (Gunnedah & Narrabri Formations).

Groundwater level monitoring from adjacent areas in the Namoi Catchment indicates a declining trend of groundwater levels in the alluvial deposits and Pilliga Sandstone as a consequence of intense agricultural abstraction. CSG abstraction operations are not expected to impact significantly on groundwater levels in the Pilliga Sandstone or overlying Namoi Alluvium. However, minimal groundwater level monitoring is carried out currently and hence monitoring of groundwater levels or pressures in these "shallow" aquifers is required. This will help to establish the baseline conditions prevailing before the commencement of pilot trials.

3.1 Shallow Aquifer Monitoring Bore (SAMB) Network

SAMB groundwater monitoring is required to collect baseline groundwater quality, pressure, and flow direction within the Pilliga Sandstone, confirm the groundwater pressure in the low permeability Purlawaugh Formation and Keelindi Beds as well as a range of data collection needs described in Table 1. It is not envisaged that groundwater is perennially present in the overlying superficial deposits (alluvium and colluvium) within the Field Area.

The depth of individual SAMBs will be dictated by the depth of the target monitoring zone, although the maximum depth of SAMBs is governed generally by the depth of the first regional seal. Given the targets are the Keelindi Beds, Pilliga Sandstone and the Purlawaugh Formation, the maximum depth of any SAMB in the NGP area will likely be dictated by the depth of the Purlawaugh Formation. The SAMBs will be arranged to maximise the acquisition of beneficial data and hence four criteria have been considered to determine the lateral distribution of the SAMBs. These include constructing an array of monitoring locations which (i) can demonstrate the absence of impact to the regional GAB aquifers; (ii) act as sentinel monitoring locations between the Field Area and groundwater abstractions; (iii) act as sentinel monitoring locations between the Field Area and GDEs; and (iv) yield essential hydrogeological data comprising additional stratigraphic data, remote head data and cores for laboratory testing of hydraulic parameters.

The SAMB network has been developed by Halcrow on behalf of Santos (Halcrow, 2012c) in order to:

- Establish baseline groundwater level and pressure conditions in the Pilliga Sandstone and overlying Namoi Alluvium prior to the commencement of CSG activities;
- Undertake long-term groundwater level monitoring over the duration of the CSG activities in order to confirm the absence or onset (and magnitude) of any impact to the Pilliga Sandstone and Namoi Alluvium associated with the CSG activities;
- Collect additional hydrogeological data to confirm the presence of aquitards impeding the vertical flow of groundwater between the Pilliga Sandstone and underlying or overlying formations; and
- Collect water quality samples at select locations. It is proposed that water sampling capabilities be designed (open boreholes) at several of the SAMB sites (Leewood in the upper Pilliga Sandstone, at Jacks Creek in the upper Pilliga Sandstone and at Turrawan in the Namoi Alluvium, if present) to supplement current regional bore assessment activities currently underway.

Specifically, the SAMB network has been designed to allow for the following outcomes:

- Demonstration of the baseline groundwater levels and the background flow pattern within the Pilliga Sandstone;
- Confirmation of the groundwater pressure in the Purlawaugh Formation; and
- Verification of the confining characteristics of the Keelindi Beds overlying the Pilliga Sandstone and hence the hydraulic segregation of the Pilliga Sandstone from the GAB Alluvials to the west of the Field Area.

The SAMB network has been arranged to maximise the acquisition of beneficial data which:

- Can inform the absence or otherwise of impact to the regional GAB aquifers;

-
- Act as sentinel monitoring locations between the Narrabri Gas Field Area and groundwater abstractions from shallow aquifers;
 - Act as sentinel monitoring locations between the Narrabri Gas Field Area and groundwater dependent ecological (GDEs); and
 - Yield essential hydrogeological data comprising additional stratigraphic data, remote head data and cores for laboratory testing of hydraulic parameters.