

## MEETING MINUTES

### Narrabri Gas Project (NGP)

### Water Technical Advisory Group (WTAG)

#### DATE / TIME

Tuesday 14<sup>th</sup> December 2021  
1:05pm

#### LOCATION

Teams meeting / Shop Front Conference Room

#### FACILITATOR

Garry West

#### MINUTE TAKER

Penny Magann-Jones (in person)

#### ATTENDEES

- ◆ Garry West (Independent Chair) (in person)
- ◆ Jack Warnock (Local groundwater user) (in person)
- ◆ Fabienne d'Hautefeuille (DPIE Water) (Teams)
- ◆ Cate Barrett (DPIE Water) (Teams)
- ◆ Edward Trindall (Narrabri LALC) (Teams)
- ◆ Randall Cox (Independent Expert) (Teams)
- ◆ Mike Williams (Independent Expert) (Teams)
- ◆ David Gornall (Santos) (Teams)

#### GUESTS

Todd Dunn (Santos) (in person)  
Keith Phillipson (AGE) (Teams)  
Servaes van der Meulen (Onward) (Teams)

#### APOLOGIES

Annie Moody (Santos)  
Narrabri Shire Council Representative

## Discussions

NO.	DISCUSSIONS
1. Welcome	Chair thanked all members for their attendance.
Recording of Minutes	The Chair advised members that usual secretarial support is unavailable and that Penny Magann-Jones (Santos) will be assisting with Minute taking for this advisory group meeting.
Confirmation of Minutes/actions	Minutes of last meeting accepted. Actions update listed in actions table (no actions outstanding).
2. Correspondence	<p><b>Correspondence from community. letter re: NGP Water Conditions of Consent</b></p> <p>Main points of correspondence related to:</p> <ul style="list-style-type: none"> <li>• Groundwater Management Plan</li> </ul> <p>Independent Chair advised the following in response to correspondence:</p> <ul style="list-style-type: none"> <li>• Letter was tabled to WTAG prior to Meeting #2, held 1 September 2021.</li> <li>• Santos will review information provided as they prepare the Water Management Plan (WMP)</li> <li>• Santos will discuss the correspondence with the WTAG.</li> </ul> <p><b>Santos Review of Correspondence</b></p> <p>The Groundwater Management Plan aligns with the recommendations of the "Narrabri Gas Project: Review of baseline and ongoing groundwater data requirements under conditions of approval", the report (the report) authored by an independent advisor, in the following manner:</p>

	<ul style="list-style-type: none"> <li>• New monitoring points installed in the Great Artesian Basin (GAB)</li> <li>• New monitoring points installed in the Gunnedah Oxley Basin (GOB)</li> <li>• Ongoing connectivity studies with “multiple-lines-of evidence” approach.</li> </ul> <p>Specific areas of misalignment:</p> <ul style="list-style-type: none"> <li>• The report does not consider project phasing or footprint:           <ul style="list-style-type: none"> <li>○ WMP for next phase only, next Phase only 6 new appraisal wells drilled</li> <li>○ Monitoring of distant aquifers and springs, assets not predicted to be impacted and monitoring not warranted with trigger monitoring in place</li> <li>○ Monitoring shallow ground for spill risk management               <ul style="list-style-type: none"> <li>• Does not consider other controls in place through the conditions of consent including management measures as specified in the various management plans</li> <li>• There are controls in place to avoid spills (e.g. FDP)</li> <li>• There is a defined spill response strategy (e.g. PIRMP)</li> </ul> </li> </ul> </li> </ul> <p>C: Just an observation, there are aspects of the report which are dated. A lot of work has been undertaken, particularly by DPIE Water, that the report does not take into account. For example, the way the groundwater resource is managed in the area isn't reflected in the report and water management policy reports that are referred to have been updated.</p> <p>WTAG facilitator to reply to correspondence on behalf of WTAG.</p>
<p>3. Presentations</p>	<p>Presentation 3: Santos presentation.</p> <p>Agenda items included:</p> <ul style="list-style-type: none"> <li>- Santos NGP update</li> <li>- WTAG feedback and Santos responses on the following plans:           <ul style="list-style-type: none"> <li>○ Site Water Balance (SWB)</li> <li>○ Surface Water Management Plan (SWMP)</li> <li>○ Dust Suppression Protocol (DSP)</li> </ul> </li> <li>- Santos introduction to new plans available for WTAG consultation           <ul style="list-style-type: none"> <li>- Groundwater Management Plan (GMP), including               <ul style="list-style-type: none"> <li>- Groundwater Baseline Report (GBR)</li> <li>- Groundwater Modelling Plan (GModP)</li> <li>- Groundwater Monitoring Plan (GMonP)</li> </ul> </li> </ul> </li> <li>- WTAG Schedule           <ul style="list-style-type: none"> <li>- Next meeting / batch of plans</li> </ul> </li> </ul> <p><b>WTAG feedback and Santos responses:</b>  55 comments received across the three plans. More detailed or complex issues to be discussed today.</p> <p><b>Site Water Balance</b>  Q: <i>Is Phase 1 of the project going to run for 25 years to ~2045?</i>  A: Phase 1 will run until the start of Phase 2 of the NGP. Conservatively, Santos have assumed 25 years lifecycle for the wells to determine the maximum possible duration of operation for wells drilled during the Phase 1. SWB will be updated prior to Phase 2 to reflect this, but also the additional wells to be constructed as part of Phase 2.</p> <p>Q: <i>Is indirect water take consistent with EIS?</i>  A: The same groundwater model was used in the EIS. Santos expect the values to be different because less CSG water would be extracted during Phase 1 (introduction of 6 new appraisal wells) compared to the EIS which considered the full development scenario (e.g. Phase 1+2+3 where phase 1 included up to 25 new appraisal wells).</p> <p>Q: <i>There is no long-term indirect take for Phase 1 but are Santos planning on using the licences they hold for direct take?</i>  A: Yes. Santos will provide more clarification of the operational period of Phase 1. Santos will work on the wording in the SWB to reflect that in the short-term Santos plans</p>

to extract water under these licences, but in the long term it would not use these licences and therefore offset predicted long-term indirect water take.

*C: The GAB WSP (2019) indicated that the GABS/ water savings will not be added to the Southern Recharge GAB water source LTAAEL until further studies of impacts are made. However, given the likely findings for future WSP it would be prudent to use 'may'.*

A: Agreed. Current Southern Recharge GAB licences are due to expire in 2023, and Santos will apply to renew their licences before they lapse. Santos expect them to be renewed as they were issued under recent water policy, which means they are unlikely to be revoked and would be considered as a sustainable allocation.

*Q: What is the salinity range projected for the ponds?*

A: The average salinity of produced water generated during exploration and appraisal activities is approximately 19,000µS/cm.

*Q: Is it assumed that the ponds will be fully mixed or haloclines form?*

A: The SWB assumes a homogenous composition of the water stored in the ponds. The salinity will vary between ponds, as will the volume of brine directed to specific ponds.

*Q: Will pond salinity (density) have an impact on the observed hydrostatic pressure?*

A: Yes. But ponds levels can be determined a number of ways including taking into account density. Level markers on the sides of the ponds or surveyed levels will be used to periodically recalibrate pressure sensors.

*Q: What are the parameters that have been averaged in Table 7.1?*

A: These are estimated annual total volumes based on estimated daily average volumes. Further clarity will be provided in the SWB to make it clear what the table is showing.

*Q: Can groundwater monitoring help inform the SWB?*

A: Yes. GMP monitoring includes coal seam water production volumes from Phase 1 wells. This will improve the SWB very early in the life of the project.

#### **Surface Water Management Plan (SWMP)**

*Q: Is a climate / weather station proposed within the NGP area?*

A: Santos will install a dedicated weather station prior to Phase 2. DPIE has conditionally approved the use of the Whitehaven Coal weather station at the Narrabri Coal Mine for Phase 1 only.

*Q: How and from what data was evaporation derived? Can the source of the wind data be referenced?*

A: Weather data that is reported is taken from the NGP EIS. Full references will be provided in the management plans.

*Q: Baseline monitoring is more focused on the NGP as expected, however data on the Santos Water Portal is much farther reaching. Is it consistent?*

A: Yes. The SWMP is specific to Narrabri Gas Project however the Santos Water Portal shows all monitoring data including locations outside of the NGP area.

*C: Section 5 is inconsistent between sub-sections, e.g. irrigation and dust suppression.*

A: Agree. We will simplify and cross reference the relevant plans where possible e.g. Irrigation Management Plan and DSP.

*C: Clarify that no water supply will be made available to other water users.*

A: Santos does not intend on supplying water to third party users as part of Phase 1. Whilst this may be an option that is under consideration for Phase 2, it would be subject to approval by the EPA.

### Dust Suppression Protocol

C: Review use of the word 'irrigation' to describe 'water use in forested areas'.

A: Agree that more clarity is needed. Irrigation is not the correct term. No intention of irrigating forested areas.

Q: What are the maximum capacities reported for the RO water treatment plant, because the values reported in the plan appear inconsistent?

A: The reported capacities are correct. Untreated water input capacity is greater than the amended treated water output capacity. Respectively around 1.5 ML/day RO input capacity is expected and 1 ML/day output capacity.

Q: Will the water deflocculate clays, for example clay exposed to constructed water storages?

A: Untreated water storages will be lined structures, as outlined in PWMP. Plans to be revised – we will only use bore water for dust suppression during Phase 1.

Q: In reference to the Santos Water Portal, why is there more widespread monitoring in the Namoi catchment upstream of the NGP?

A: Data on Santos Water Portal is not only applicable to NGP. For surface water baseline, refer to the SWMP and for groundwater baseline, refer to the GMP.

### Groundwater Management Plan (GMP)

Overview of Groundwater Management Plan including:

- Groundwater Baseline Report
- Groundwater Monitoring Plan
- Groundwater Modelling Plan

No comments were discussed regarding the following aspects which were introduced by Santos:

- Groundwater monitoring triggers, performance criteria and management responses
- Groundwater Modelling Plan
- Connectivity Studies prior to Phase 2

### Baseline Report

C: Namoi Alluvial is showing in the Baseline Report as declining but in fact the water/pressure levels are being actively managed to remain above an agreed maximum drawdown level. There is some drawdown that is acceptable to the community but there are rules in place to ensure maximum level is not exceeded. For example, there are critical water levels at specific bores and then there are tools of announced allocations among other things, e.g. bans on trades.

C: DPIE releasing Annual Groundwater status reports in the coming weeks. Seasonality of the Upper and Lower Namoi Alluvial is being monitored and there is a trigger that the trends should not exceed, if it the trigger level is exceeded DPIE would engage in water level management.

C: Observation that there is seasonal variability in the Namoi Alluvial but the importance of river flow like we are experiencing at the moment. It's a combination of having higher rainfall in the past 18 months to 2 years which has reduced the demand on groundwater the increased infiltration of surface water into the groundwater system. So, those figures of decline, may be significantly less than 10 metres over the past 40 years, might be 2-3 metres but has recovered a lot of that in wet seasons like we are currently experiencing.

C: EIS data was compiled during the drought.

C: Not familiar with the hydrographs in the report but many look odd in that the water level fluctuates seasonally for many years, then stops fluctuating. Other hydrographs show the reverse.

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	<p>C: Important to use the same scale on each hydrograph and measurements from the surface so visually you can see the direct comparison between the level of groundwater on the same scale and the surface.</p> <p>C: Baseline Report needs to separate different zones of the Namoi Alluvial, shouldn't be comparing the Lower Namoi which is a more pressurised system with Zone 2 &amp; 5 in the Upper Namoi.</p> <p>A: Will take these comments into consideration on receipt of WTAG member comments.</p> <p><b>Monitoring Plan</b></p> <p>C: There are DPIE monitoring bores with antiquated water quality data dating back to 1999.</p> <p>C: There are water quality studies for the Namoi system post 1999, not sure if they were integrated into the government database or not but certainly the information is available.</p> <p>A: Will take these comments into consideration on receipt of WTAG member comments.</p>
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## Actions

NO.	ACTIONS	ACTION BY	DUE DATE
1	Members to review Groundwater Management Plan including subplans and submit feedback to Santos in the template provided	All	7/2/22
2	Chair to circulate the Santos presentation	Chair	ASAP
3	Members to advise their interest in participating in a NGP site tour in February 2022.	All	10/1/22

## Next Meeting

Tuesday 15<sup>th</sup> February 2022.