

MEETING MINUTES

Narrabri Gas Project (NGP)

Water Technical Advisory Group (WTAG)

DATE / TIME

Tuesday 14th February 2023
1:00pm

LOCATION

Teams meeting / Shop Front Conference Room

FACILITATOR

Garry West

MINUTE TAKER

Lyn Firth

ATTENDEES

- ◆ Garry West (Independent Chair)
- ◆ Cate Barrett (DPIE Water) (MS Teams)
- ◆ Fabienne d’Hautefeuille (DPIE Water) (MS Teams)
- ◆ David Gornall (Santos)

- ◆ Edward Trindall (Narrabri LALC)
- ◆ Randall Cox (Independent Expert)
- ◆ Mike Williams (Independent Expert)
- ◆ Cr Cathy Redding (Narrabri Shire Council)
- ◆ Annie Moody (Santos)

GUESTS

- ◆ Todd Dunn (Santos)
- ◆ Keith Phillipson (AGE) (MS Teams)

APOLOGIES

Nil

Discussions

NO.	DISCUSSIONS
1. Welcome	Chair welcomed and thanked all members for their attendance and acknowledged Gomerai country on which the meeting was held as well as Elders past, present and future and all Aboriginal persons present. The Chair asked if there were any new declarations of conflict of interest.
Recording of Minutes	The chair asked member if there was any objection to the recording of the minutes for secretarial purposes with the minute’s audio being deleted once the minutes were final and approved. There was no objection.
Confirmation of Minutes/actions	Minutes of last meeting circulated. There were some minor adjustments made before they were finalised. The “Phase 2 Groundwater Model Objectives“ report circulation has been deferred. There will an update on the report by Dave Gornall during the meeting The Field Development Plan has been circulated.
2. Correspondence	Jack Warnock and Conrad Bolton have tendered their resignations from the advisory group due to personal commitments.

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	<p>Existing members were asked if they knew of any suitable potential members to advise the chairman.</p> <p>Dave suggested ways in which the group could get new members “up to speed” on the science of the groundwater modelling and other matters handled by the group. Chair agreed this could be discussed further once new members had been identified, and any face-to-face information sessions with new members could occur around the same time of a WTAG meeting.</p>
<p>3. Presentations</p> <p>Santos Update Todd Dunn</p>	<p>Corporate Update</p> <ul style="list-style-type: none"> • Santos has released its full year results. • Legal challenges being worked through on the Barossa Project • Pikka project (in Alaska) progressing well. • Moomba CCS project seen as strategic project for Santos to decarbonise the energy supply chain. • Santos is also investigating future projects in the clean fuels area – more information is available on the Santos website, and this information will also be sent out to participants. <p>Narrabri Gas Project Update</p> <p>Phase 1 activity has commenced, and the shallow water bore program is underway.</p> <p>There is still significant work to be done in order to sanction the project and before the commencement of Phase 2.</p> <p>The pilot wells won’t come online until the water bores are online. This provides the operational and baseline data to help inform model updates. Santos needs 12 to 18 months of data before they can make an investment decision.</p> <p>Santos is focused on progressing remaining approvals including the Petroleum Production Leases (PPLs) for the Narrabri Gas Project, and the Pipeline Licences (PL) for the Hunter Gas Pipeline (HGP) and Narrabri Lateral Pipeline (NLP).</p> <p>The Native Title Tribunal made a positive determination which has been appealed. Santos has not received any guidance on the timing of future hearings.</p> <p>NGP inductive timeline and scope</p> <p>Phase 1 is expected to extend into 2024. This gives more time to the water group to obtain, assess and update the Groundwater Model prior to Phase 2.</p> <p>Santos clarified that the groundwater model report for Phase 2 of the NGP would need to be reviewed by stakeholders, including the WTAG, prior to submission of the Water Management Plan for Phase 2 of the NGP, which must be approved by NSW Government prior to the commencement of Phase 2.</p> <p>Hunter Gas Pipeline Update</p> <p>The original consent was given in 2010 and there was an extension given to October 2024.</p> <p>The preferred route was selected based on minimising impacts on landholders and the environment. Although Santos acquired data from the previous proponent, there remains further environmental surveys and landholder engagement required to finalise the alignment.</p> <p>Santos is liaising with landowners, councils, and other parties along the route to ensure the pipeline meets current and future requirements.</p> <p>Todd spoke to the granting by the NSW Government of Authority to Survey (ATS) but stressed that this would be used as a last resort only.</p>

<p>WMP Implementation David Gornall</p>	<p>Q. Randall: How many individual agreements do you expect to have? A. Todd: In the order of 400 landholders.</p> <p>Narrabri Lateral Pipeline Update This is the pipeline link between the Narrabri Gas Project and the Hunter Gas Pipeline.</p> <p>Santos is working through the process to obtain approval for the project through the development of an EIS. A Scoping Study has been submitted and the SEARs have been issued.</p> <p>Q: When the pipeline is completed and rehabilitated, can the land continued to be used? Will the land be sterilised? A: Todd – No, far from it. Once the project is completed, the land is returned to the owner to continue agricultural activity consistent with previous activities. There is also compensation for the establishment of the easement and disturbance to their activities.</p> <p>Q. Edward: What is the timeline for this? A. Todd: Santos is intending to commence construction in Q1 2024.</p> <p>Within the Narrabri Gas Project, work on the construction of the shallow water monitoring bores has commenced. This is fulfilling some of the commitments to install new monitoring points in the Groundwater Monitoring Plan for Phase 1 of the NGP. Construction will continue until about July with 10 bores to be installed in the Pilliga and Digby formation. AECOM are project managing this work and IMPAX are undertaking the drilling activity.</p> <p>Fabienne: (Follow up questions) With not logging (down hole) the shallow bores, will you be short of formation hydraulic parameters on those more shallow formations? CSG wells are typically not very informative on characterisation of the upper strata. Would you not also do downhole geophys to confirm bore integrity?</p> <p>Dave: (Follow up response) Geophysical logging equipment can be used to confirm drilling depths and formation intervals. It can also provide information on the porosity of formation, clay content, hole diameter, integrity of the borehole, and best production zones within the aquifer sequence. Logs are recommended by 'Minimum Construction Requirements for Water Bores in Australia' to ensure the driller can see the formation changes with depth.</p> <p>Data collected from the nearby CSG well (Bohena South 1C, ~50m away) provides good information on the drilling depths and formation intervals. Higher quality geophysical logs in this well commence from the base of the Napperby Shale. Above that, a gamma log and rock chip returns allow the shallower formation depths and basic characteristics to be identified. Rock chips from the water bore drilling are analysed to confirm formation depths encountered during drilling are consistent with the neighbouring well.</p> <p>For the purpose of using bore log information to improve the groundwater model, Santos is more interested in the physical characteristics of the low permeability sediments of the deeper Gunnedah Basin (i.e. below the Napperby) more immediately above the target coal seams. Rock properties of shallower (e.g., GAB formations) are less critical to model predictions. The geophysical log in the neighbouring well (Bohena South 1C) provides sufficient information in that regard. The variability in the geology (formation depths, physical properties) is unlikely to vary much across a 50m linear distance due to the despoitional environments that low permeability sediments are typically formed (i.e. low energy, uniform deposition).</p> <p>The necessary integrity of the bore construction is achieved by complying with the relevant Australian Water bore construction standards for bore sealing.</p> <p>Garry: One of the issues raised in the CCC – Should monitoring of the private bores around the area be reopened?</p>
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General Business	<p>Todd: It was a commitment pre-EIS that baseline monitoring of private bores would occur when requested. This fulfilled baseline assessment requirements.</p> <p>David: In terms of long-term monitoring, our commitment is what is contained in the water management plans, does not specify private bores. However, it is quite possible that in the future, that more bores will be monitored as the project expands, but is this information that is going to be used to inform the groundwater model? Santos need to be careful of making general commitments to monitor landholder bores if they are not near to the proposed project.</p> <p>Randall: In Queensland, during the early phase of CSG development, the predecessor of the current Department of Regional Development Manufacturing and Water, set up an initiative now called “Groundwater Net”. The initiative involves departmental technical staff meeting with groups of landowners to talk about groundwater matters generally. At group meetings the department staff explain how to set up monitoring in water bores so that bore owners can better understand the condition of their bores, as well as changes in water levels. Through the group meetings bore owners come to understand that reduced bore performance is often due to bore condition issues such as corroded casing, rather than changes in water levels. This knowledge assists bore owners to better manage bore maintenance. The groups also provide a forum where groundwater concerns can be discussed in an informed way. The groups therefore provide benefits that go beyond monitoring under the formal monitoring program of a CSG project..</p> <p>David: This is something to consider for Phase 2. It may be a project that is better driven by a group such as CCC or WTAG or some other independent group as there are not necessarily many landowners wanting to be part of a group run directly by Santos.</p> <p>There were further discussions about how such a group could be formed. Points discussed:</p> <ul style="list-style-type: none">• One of the reasons the initiative was successful in QLD was because it was perceived as being independent of the CSG industry.• Bore owners were supplied with the knowledge to enable them to monitor their own bores independently of industry and government. It becomes good business management for landowners as they were able to better understand the workings of their own bores.• No funding model available in NSW. In Qld, it was sponsored by the government. <p>Garry suggested “parking” this idea. Someone from the Queensland Government involved in the initiative could be invited to talk to the WTAG group in the future.</p> <p>NGP Groundwater Model Development</p> <p>Things have not progressed as quickly in terms of Phase 1 appraisal so there is more time for data collection, interpretation, and review.</p> <p>The data collection process is dependent on drilling the core holes which has been pushed back to later in the year and that is dependent on rig availability.</p> <p>Q. Fabienne – Was there any follow up on the meeting we had later last year on model class criteria? Was the Model Objectives Report circulated?</p> <p>A. David - That has now been pushed back to February/March.</p> <p>We have also commissioned the Groundwater Conceptualisation Report and we are getting geological work done for this. Items 1 and 2 can be worked on without the new core holes going ahead. We would like to present this at the next WTAG meeting.</p> <p>There is a dinner tomorrow night on Wednesday (15th February) at 6:00pm There is a field tour on Thursday (16th February) commencing at 7:45am.</p> <p>Meeting Closed: 2:20pm</p>
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Actions

NO.	ACTIONS	ACTION BY	DUE DATE
1	"Model Objectives Report" to be circulated	David Gornall	February/March
2	Information about Santos hydrogen projects to be sent out to members	Todd Dunn	After meeting and when available
3	Follow up of landowner group formation	Garry West	TBA

Next Meeting: 16th May 2023