



Appendix P  
Groundwater



## EIS Appendix P

The respondent comments provided in this section have been collated from all stakeholder submission comments relating to EIS Appendix P Groundwater. Please refer to **Attachment A** for copies of all submissions received.

### Appendix P Groundwater

#### Appendix P2 – Groundwater (deep)

##### Respondent Comment

*Department of Environment and Resource Management state that the proponent should provide information on the future development scenario (including number of wells and associated water quantity assumptions) that was used in the modelling for the Spring Gully fields.*

##### Santos Response

Santos has undertaken additional modelling of groundwater and associated water since the EIS. The Groundwater and Associated Water Impact Study (**Attachment D2**) includes, in Section 4, modelling of the quantity of associated water that might be expected from the production to support the GLNG Project for each of the Roma, Fairview and Arcadia CSG fields. Santos has used this modelling for the preparation of the mitigation measures for groundwater impacts and the preparation of the Associated Water management Plan (**Attachment D3**).

##### Respondent Comment

*Department of Environment and Resource Management state that the proponent should provide a detailed assessment on the interaction of deep aquifers between this project and other proposed LNG projects.*

##### Santos Response

Santos has undertaken additional modelling of groundwater and associated water since the EIS. The Groundwater and Associated Water Impact Study (**Attachment D2**) includes, in Section 4.4 modelling and assessment of the interaction of the deep aquifers for the CSG fields. **Attachment J** includes a high level assessment of the cumulative impacts on the groundwater associated with the GLNG Project and other possible gas field developments.

##### Respondent Comment

*Department of Environment and Resource Management state that the proponent should obtain groundwater data pre-dating CSG extraction for the area to form a baseline for impact assessment.*

##### Santos Response

Santos has undertaken additional modelling of groundwater and associated water since the EIS. The Groundwater and Associated Water Impact Study (**Attachment D2**) includes piezometric surfaces and salinity of the hydrogeological management units across the GLNG Project area are shown in Figures 16 – 25 (in **Attachment D2**). These figures were generated using data available in the DERM groundwater database. Data was sourced over multiple decades (1900 - pre coal seam gas operations (pre 2000)).

## EIS Appendix P

### Respondent Comment

*Department of Environment and Resource Management state that the proponent should provide information detailing the estimated time that would elapse between drawdown of coal seam aquifers and resource aquifers. In consequence, the estimated time between cessation of water extraction from the coal seams and cessation of drawdown in the resource aquifers should also be provided. As a result, the proponent should provide detailed mitigation measures demonstrating an ability to "make good" based on this information.*

### Santos Response

Santos has undertaken additional modelling of groundwater and associated water since the EIS. The Groundwater and Associated Water Impact Study (**Attachment D2**) includes, in Section 4.4 modelling and assessment of the interaction between the deep aquifers for the CSG fields as a result of the drawdown of coal seam aquifers. The extent of the interaction differs between the fields. Limited interaction is expected for the Roma CSG field, whereas some interaction is expected for the Arcadia and Fairview CSG fields.

Recognising this potential interaction, where trigger levels indicate it is necessary, Santos will utilise the make good options outlined in section 9.5 of **Attachment D2**.