

Section 6

Coal Seam Gas Fields Environmental Values and Management of Impacts

6.1 Overall Assessment Methodology

6.1.1 Introduction

The assessment methodology that has been adopted for the GLNG Project was developed in the early stages of the project impact assessment subsequent to the review of the Terms of Reference (ToR). The review included the Santos EIS management team; URS study team leaders and relevant government agency representatives. The review indicated that conventional EIS impact assessment approaches would not be suitable for the CSG field component of the GLNG Project.

The GLNG Project has one of the largest footprints for any EIS conducted in Queensland and therefore the assessment methodology needed to be modified to reflect this challenge.

In addition to the size of the project footprint, the nature of the petroleum and gas industry needed to be fully understood and appreciated to develop a feasible approach for the impact assessment of each study component.

The petroleum and gas industry has a long history of performing impact assessments as part of its exploration and production development. If during the exploration phase the gas reserves are not proven to be economical, all works cease including the impact assessment. Alternatively, if the exploration phase proves to be successful, the area is subsequently developed. Included in these development works is the requirement for more detailed impact assessment.

This approach is different from traditional impact assessments for mining projects. For mining, exploration and production of the mineral resource is well defined, thus the area that is subject to an impact assessment is also clearly defined at the start of the project. Having a clearly defined project area enables more conventional baseline studies and impact assessments to be undertaken.

6.1.1.1 Santos' Existing CSG Impact Assessment Process

The EIS ToR requires the development of protocols for ongoing detailed assessment of disturbed areas. The protocols that are developed under this EIS for the CSG fields are the existing Santos work instruction titled "Planning and Obtaining approval for CSG Activities" modified to take into account this EIS process. Its objectives are to ensure that:

- All potential impacts are identified for new activities;
- Mitigation measures are developed for all new activities; and
- Confirmation that conditions of all approvals will be complied with prior to any field activities taking place.

Constraints maps are developed and used for the initial planning of proposed field developments which is based on the information in this EIS. This assessment will trigger one of the following options:

- **Proposal to disturb new ground.** The potential impacts of new ground disturbance are investigated through site scouting undertaken in accordance with the existing Santos protocol (EHSMS 9.5). This assessment is to ensure that the proposed footprint is as small as possible, that there will be minimal interference with existing or proposed land uses, and that broader and cumulative impacts are considered. A review of compliance with the conditions of existing approvals will also be undertaken. Management controls and/or monitoring commitments are then developed consistent with this approach and internal Santos approval obtained. If the conditions require additional regulatory processes before commencing the activity, then Santos will complete those processes before commencing the activity.
- **Proposal that involves no new ground disturbance.** Where no new ground is disturbed, a desktop assessment only is undertaken as the proposed activity would be occurring in an area that would have been scouted previously or has been significantly disturbed through other land uses. A

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review of compliance with the conditions of existing approvals will also be undertaken. Management controls and/or monitoring commitments are then developed and internal Santos approval obtained. If the conditions require additional regulatory processes before commencing the activity, then Santos will complete those processes before commencing the activity.

The implementation of the above planning and assessment process for ongoing field developments ensures that potential impacts are identified and minimised. Landholder consultation is an integral component of this process.

6.1.2 CSG Fields Assessment Methodology

To meet the additional demand that will be created by the GLNG Project, existing CSG fields will need to be expanded and new fields developed. As each production well will have an approximate life of 5 to 15 years it will be necessary to continually replace depleted wells with new ones over the 25 year life of the CSG fields. New wells will be developed at a rate that is sufficient to provide enough CSG for the required LNG production. In addition, the production infrastructure will be to be expanded to support the new wells. This will cause the ongoing disturbance of areas throughout the CSG fields, which will see a rolling program of exploration and production activities.

Because of the large area of the CSG fields and the reasonably foreseeable development (RFD) area and the ongoing nature of exploration and gas production, the full extent and location of the wells and associated infrastructure is not yet known and will evolve gradually over the life of the project. Consequently, it is not feasible to undertake conventional baseline studies and impact assessment and so, for the CSG field component of the project, a two-phased approach has been adopted for its impact assessment.

The first phase (Phase1) which has been reported in this EIS incorporates the following tasks:

- Desktop assessment of the CSG fields study area. This desktop assessment included literature reviews, database searches, interpretation of relevant mapping layers and liaison with local community groups;
- Reconnaissance field surveys of the RFD areas in the potentially sensitive locations that were identified from the desktop assessment;
- Assessment of likely impacts from typical project elements (e.g. wells, pipelines, compressor stations, gas processing facilities, accommodation camps, produced water management and other related infrastructure). This was based on identified impacts and mitigation measures employed at the existing Santos CSG operations; and
- Development of a protocol (based on Santos' existing CSG impact assessment process as described above) for the ongoing impact assessment of each project element to be undertaken as their nature and location becomes known over the life of the project.

The second phase (Phase 2) will be the implementation of the protocol for ongoing impact assessment of each project element once its nature and location becomes known over the life of the field development. This phase will be undertaken after the EIS process is completed and the GLNG Project is operational. It will be managed through the regulatory bodies and the existing internal Santos impact assessment process and will feed directly into their Environment, Health and Safety Management System (EHSMS), as detailed in Appendix BB.