

**DEPARTMENT OF SUSTAINABILITY, ENVIRONMENT, WATER, POPULATION AND
COMMUNITIES**

Minister: For Decision

Brief No: B11/215 Division/Agency: Approvals and Wildlife Division
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FINAL EPBC ACT APPROVAL DECISIONS – APLNG PROJECT
 (EPBC 2009/4974, 2009/4976 and 2009/4977)

Timing: The statutory approval deadline is 22 February 2011.

Recommendation:

That you consider the recommendations and make the decisions set out in the EPBC Act briefing package at **Attachment A**.

Considered / Please discuss

Minister's signature:

Tony Banks

Date:

21.2.11
~~22.2.11~~

Minister's comments:



Key Points:

This brief presents, for your consideration, **final** approval decisions and conditions for three referrals by Australia Pacific LNG Pty Limited (APLNG) which collectively comprise the APLNG project. In B11/37 you made **proposed** decisions to approve those referrals, under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), subject to proposed conditions. (A copy of that cover brief and appendix is at [Appendix A](#).) The proposed conditions were closely based on those you attached to your approvals for the Santos and QGC projects.

On 2 February 2011 you wrote to APLNG; the Deputy Prime Minister and Treasurer; The Minister for Regional Australia, Regional Development and Local Government; The Minister for Infrastructure and Transport; The Minister for Agriculture, Fisheries and Forestry; The Minister for Resources, Energy and Tourism; The Minister for Climate Change and Energy Efficiency; and the Queensland Minister for Infrastructure and Planning, the Hon Stirling Hinchliffe MP, seeking comments on your proposed decisions. At the date of this brief, we have received comments on the proposed decisions from APLNG, the Hon Stirling Hinchliffe MP, and the Queensland Department of Planning and Resources. The department has also had direct discussions with APLNG on the proposed conditions.

APLNG's comments are at [Appendix B1-B4](#). The Hon Stirling Hinchliffe MP's letter and Queensland Department of Infrastructure and Planning comments are at [Appendix C1 and C2](#) respectively. The department's detailed responses to APLNG's comments are at [Appendix D1 – D3](#) for the gas fields, pipeline, and LNG plant referrals respectively and [Appendix D4](#) (for other comments). The responses have led to a small number of minor recommended changes to the proposed conditions, which are indicated in marked-up versions of the decision instruments at [Appendix E1-E3](#). Those minor changes are incorporated in the 'clean' versions of the decision instruments recommended for your signature at [Appendix F1 – F3](#).

The recommended changes are limited and minor. These include, for example:

- In relation to the gas fields – revisions to maximum disturbance limits (and corresponding requirements for offsets) and requirements for corridor widths for linear infrastructure, based on additional information provided by APLNG; revisions to allow additional flexibility for the proponent to potentially manage CSG water produced by a third party (although subject to the same conditions for water management which APLNG would have to meet for its own CSG water). We note that APLNG also requested some changes which we do not recommend are adopted. These included suggested changes to require responses to reductions in groundwater pressure only where “caused by the project”. We do not recommend such changes be made because, in practice, it will be impractical to separate impacts caused by the project from impacts caused by other proponents or third parties. Such a change would also be inconsistent with the framework of water-related conditions you imposed on the Santos and QGC projects.
- In relation to the pipeline – minor revisions to disturbance limits and corresponding offset requirements;
- In relation to the LNG plant – changes to the maximum estimated amount of dredging material (APLNG had suggested to the department that a lower figure than estimated in its EIS was possible, but considers that the EIS figure should be retained subject to detailed geotechnical investigation); and minor changes to align the conditions more closely with the relevant conditions you imposed on the Santos and QGC projects.

Issues / Sensitivities:

No significant new matters have arisen in response to your request for comment on the proposed decisions. The APLNG project covers a very large geographic area, from the Surat Basin in Southern Queensland to the Port of Gladstone. The APLNG project is forecast by the Queensland Coordinator-General to stimulate an increase in Queensland’s gross state product of approximately \$2 billion annually and to create approximately 9,900 direct and indirect jobs.

As noted in earlier briefing to you on the proposed APLNG decisions (B11/37), the relevant environmental impacts of the projects are diverse and numerous. As there are uncertainties about impacts of coal seam gas water extraction at the regional scale, the department recommends a comprehensive groundwater management and monitoring framework, based on the principle of adaptive management, to provide strong protection for matters of national environmental significance. This framework is the same as that you imposed on your approvals of the Santos and QGC coal seam gas projects.

Media and Handling:

Your final decision will attract media attention. A media handling note will be provided to your office. APLNG will also make an announcement about the approvals (it is, at least, required to inform the market).

Approved by:

Mary Colreavy
Assistant Secretary,
Environment Assessment Branch 2
Phone number: s. 47F(1)
Mobile: s. 47F(1)
Date: 18 February 2011

s. 47F(1)

Secondary Contact:

s. 22(1)(a)(ii)
Director, Mining Section 1
Phone number: s. 22(1)(a)(ii)

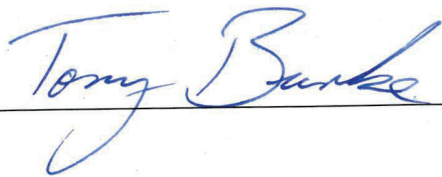
Consultation: Water Group, Geoscience Australia. cc: s. 22(1)(a)(ii) (GBRMPA), s. 22(1)(a)(ii) (Marine Division), s. 22(1)(a)(ii) (Heritage Division), s. 22(1)(a)(ii) (Water Group)

Attachment A: EPBC Act Briefing Package

**ATTACHMENT A TO B11/215 - APLNG LNG PROJECT
FINAL EPBC ACT APPROVAL DECISIONS**

Recommendations:

- | | |
|--|---------------------------------------|
| 1. Consider the information in this brief and its appendices. | 1. <u>Considered</u> / Please discuss |
| 2. Consider the proponent's responses to your invitation for comment on the proposed decisions at <u>Appendix B1-B4</u> . | 2. <u>Considered</u> / Please discuss |
| 3. Consider the letter from the Hon Stirling Hinchliffe MP and the Queensland Department of Infrastructure and Planning response to your invitation for comment on the proposed decisions at <u>Appendix C1 and C2</u> . | 3. <u>Considered</u> / Please discuss |
| 4. Agree with the department's recommended responses to the proponents comments at <u>Appendix D1-D3</u> (in relation the gas fields, pipeline, and LNG plant respectively) and responses to Queensland Department of Infrastructure and Planning comments at <u>Appendix D4</u> . | 4. <u>Agreed</u> / Please discuss |
| 5. Agree with the recommended changes to the conditions, indicated in the marked up documents at <u>Appendix E1-E3</u> for each referral. | 5. <u>Agreed</u> / Please discuss |
| 6. Approve each action, for the relevant controlling provisions summarised in tables 1 - 3 below for each separate referral. | 6. <u>Approved</u> / Not approved |
| 7. If you agree to 4, 5 and 6, accept the reasoning in this departmental briefing package and the proposed decision briefing package, as the reasons for your decision. | 7. <u>Accepted</u> / Please discuss |
| 8. Sign the approval instrument for expansion of the coal seam gas fields (EPBC 2009/4974) at <u>Appendix F1</u> . | 8. <u>Signed</u> / Not signed |
| 9. Sign the approval instrument for the gas transmission pipeline (EPBC 2009/4976) at <u>Appendix F2</u> . | 9. <u>Signed</u> / Not signed |
| 10. Sign the approval instrument for the LNG plant and ancillary onshore and marine facilities on Curtis Island (EPBC 2009/4977) at <u>Appendix F3</u> . | 10. <u>Signed</u> / Not signed |
| 11. Sign the letters at <u>Appendix G</u> advising the proponent and relevant Ministers of your decisions. | 11. <u>Signed</u> / Not signed |

Minister's signature:

Date:

21. 2. 11

ATTACHMENT A – EPBC Act Briefing Package

Summary of recommendations on each controlling provision for each action:

Table 1 - CSG gas field expansion (EPBC 2009/4974)

Controlling Provisions for the action	Recommendation	
	Approve	Refuse to Approve
Listed threatened species and communities (ss 18, 18A)	Approve	
Listed migratory species (ss 20, 20A)	Approve	
Wetlands of International Importance (Ramsar) (ss 16, 17B)	Approve	

Table 2 - Gas transmission pipeline (EPBC 2009/4976)

Controlling Provisions for the action	Recommendation	
	Approve	Refuse to Approve
World heritage properties (ss 12, 15A)	Approve	
National heritage places (ss 15B, 15C)	Approve	
Listed threatened species and communities (ss 18, 18A)	Approve	
Listed migratory species (ss 20, 20A)	Approve	

Table 3 - LNG plant and ancillary onshore and marine facilities on Curtis Island (EPBC 2009/4977)

Controlling Provisions for the action	Recommendation	
	Approve	Refuse to Approve
World heritage properties (ss 12, 15A)	Approve	
National heritage places (ss 15B, 15C)	Approve	
Listed threatened species and communities (ss 18, 18A)	Approve	
Listed migratory species (ss 20, 20A)	Approve	

Background:

On 2 February 2011, as recommended in the Proposed Approval Decision Brief (Appendix A), you wrote to the proponent Australia Pacific LNG Pty Limited (APLNG) and relevant Commonwealth Ministers seeking comments on your proposed decision to approve the APLNG project with conditions. Your proposed conditions were in relevantly similar to those you attached to your decisions on 22 October 2010 to approve the Santos and QGC projects.

In response to your invitation, comments were received from the proponent and the Queensland Department of Infrastructure and Planning. The department's responses to APLNG's comments are at Appendices D1 – D3 for the gas fields, pipeline, and LNG plant referrals respectively and Appendix D4 (for other comments).

ATTACHMENT A – EPBC Act Briefing Package

Issues / Sensitivities:

The matters for consideration and factors to be taken into account for your approval decision remain as set out in our Proposed Approval Decision Brief ([Appendix A](#)). In addition, you must consider relevant comments that have been given to you in accordance with the invitations on your proposed approval.

Principal features of the conditions

The recommended final conditions are essentially the same as the proposed conditions and the conditions that you imposed on the Santos and QGC projects. The principal elements of the recommended conditions therefore remain the same as those outlined in the proposed decision brief (B11/37). These include:

In relation to the gas fields:

- consistent with the final approval decisions for the Santos and QGC projects - water management and monitoring strategies to ensure avoidance of impacts on matters of national environmental significance (NES) from CSG water extracted from aquifers and the management of that water once extracted. The framework would allow for groundwater drawdown thresholds based on conservative estimates derived from the proponent's own modelling. In the first 24 months after approval, those base level thresholds cannot be exceeded. After that 24 month period, if the approved thresholds are exceeded, the proponent must implement response measures, such as re-injection, to maintain aquifer pressure. The framework allows the proponent to avoid trigger and response requirements if it can demonstrate, to your satisfaction, that a targeted aquifer is not hydraulically connected to others.
- 'ceilings' on the maximum areas of disturbance to listed ecological communities and habitat for threatened species which may be impacted by the APLNG project;
- field management protocols to avoid and minimise impacts to listed species and communities;
- significant upfront commitments to offsets. The amount of habitat-related offsets have been calibrated by reference to the maximum allowable 'ceilings' on disturbance;
- independent audits;

In relation the gas transmission pipeline:

- similarly to the recommended conditions for the gas fields – 'ceilings' on disturbance; upfront commitments to significant offsets; and independent audits;

In relation the LNG facility:

- a significant package of direct and indirect offsets that would operate in relation to the World and National Heritage values of the area. These include requirements to secure an offset property, at a ratio of 5:1 for the LNG facility site area. The conditions require that any property secured must be located within the Great Barrier Reef World Heritage Area, preferably on Curtis island or nearby.
- detailed requirements for management plans to mitigate impacts relating to construction and operation of the facility.

Comments from proponent

The proponent provided the written responses to the invitation to comment on the proposed approval. In response to the comments made on the proposed conditions, the department has recommended a number of minor changes. Details of the recommended changes are indicated in the marked-up versions of the recommended conditions at [Appendix E1](#) (for the gas fields), [Appendix E2](#) (for the gas transmission pipeline), and [Appendix E3](#) (for the LNG plant).

ATTACHMENT A – EPBC Act Briefing Package

APLNG's letter outlining proposed changes to the conditions, received on 11 February 2011 (Appendix B1) and included comments on conditions for the following referrals:

- the gas transmission pipeline (EPBC 2009/4976) (Appendix B2 is APLNG's suggested changes marked-up);
- LNG plant and ancillary onshore and marine facilities (EPBC 2009/4977) (Appendix B3 is APLNG's suggested changes marked-up); and
- The expansion of the coal seam gas fields (EPBC 2009/4974) (Appendix B4 is APLNG's suggested changes marked-up).

The department has had discussions with APLNG, including a face-to-face meeting on 8 February 2011, to discuss the proposed conditions. The department's detailed responses to the comments received are outlined at Appendix D1-D3 in relation to each referral respectively.

Issues raised by the proponent

In our view, the principal issues raised by the proponent's comments are as follows:

Constraints Planning and Field Development Protocol (gas fields, condition 5)

A number of changes have been recommended to the field protocol to apply to development in the gas fields. The object of this condition remains the same as relevantly similar conditions imposed for the Santos and QGC gas field proposals – which is to ensure that the proponent minimises its impacts in the gas fields as far as possible. The changes are recommended in response to further information provided by and consultation with APLNG about the constraints categories it will apply to field development. (Each proponent applies differently described constraints categories for development of the gas fields.) We have also recommended changes to requirements for linear infrastructure corridor widths in condition 5(m), in response to further information provided by the proponent. Proponent-specific corridor widths were similarly applied in your approval of the Santos and QGC projects.

BTEX (gas fields, condition 44b)

APLNG have requested variation to a proposed condition prescribing that 'BTEX' chemicals are not used in hydraulic fracturing operations (condition 44b). BTEX chemicals are the aromatic hydrocarbons benzene, toluene, ethylbenzene, and xylene. In October and November 2010 there was media attention around reports of BTEX chemicals in APLNG's existing CSG exploration activity (this was detailed in B10/37). The Director-General of the Queensland Department of Environment and Resources Management (DERM), which is the responsible state regulatory agency, subsequently advised this department in November 2010 that there were no impacts on landowner bores or evidence of environmental harm from those incidents.

DERM (via comments forwarded from the Queensland Department of Infrastructure and Planning) advises that the proposed condition relating to BTEX is not practical because trace amounts of naturally occurring BTEX, and BTEX from other sources, may contaminate fracturing fluids. Those traces would be detected by the highly sensitive laboratory tests, making a zero reading very difficult to achieve. Similar comments were provided by the proponent on the proposed condition. Queensland is proposing to prohibit the use of BTEX to ensure protection of ecosystems and public health.

Taking into account this information, including Queensland advice that it is currently working to prescribe regulations prohibiting BTEX, we think that the condition is now unnecessary. Any condition you impose is necessarily limited to the protection of matters of national environmental significance. The proposed conditions (condition 50f), like those you imposed on the Santos and QGC projects, already require details of the components of fracturing fluids to be reported in a

ATTACHMENT A – EPBC Act Briefing Package

water monitoring and management plan to be submitted for your approval. We are satisfied that condition 50f would allow for the relevant regulation of BTEX for potential impacts on matters of NES. This is because, if details provided under the water management and monitoring plan indicate it is necessary, the conditions and the EPBC Act provide for you to impose additional conditions. This is the same approach that you approved for the Santos and QGC projects.

Drawdown limits and thresholds (gas fields, conditions 49, 53a)

APLNG requested changes to the conditions on aquifer drawdown limits and thresholds (conditions 49 and 53a). In relation to condition 49, the requested change was to qualify your discretion to set default groundwater drawdown limits for each aquifer for *'the protection of MNES'*. This is different from the recommended condition and similar conditions imposed for the Santos and QGC gas field projects. Those conditions do not specifically provide *'for the protection of MNES'*. The department does not agree to this change. Condition 49 represents a precautionary approach to avoiding risks of impacts on MNES. Due to the inherent uncertainties and the large geographic extent of the Project, and long time-frames between groundwater drawdowns and potential impacts, a direct link between risks of impact and groundwater drawdown would be impractical to establish at the time of setting drawdown thresholds. Accordingly, the department does not recommend accepting the requested change to condition 49.

APLNG made a related suggestion to qualify proposed condition 53a, so that its requirements only apply where you are satisfied there is "no harm to MNES". Condition 53a requires measures for an ongoing CSG water treatment program in the Stage 2 Water Management and Monitoring Plan. Alternatively, the proponent has suggested a new provision in condition 53, to make it clear that desirable brine injection is not prevented. The department does not recommend that either of these suggested changes be made. The suggested change to condition 53a should not be accepted for similar reasons for rejecting the proponent's suggested change to condition 49 (explained above). The alternative suggested change in relation to brine injection should also not be accepted. The proposed conditions do not prevent brine injection. Rather, there is a requirement for repressurisation (and suitable water treatment for that purpose) only where threshold limits are exceeded. If those thresholds are not exceeded, the proponent has flexibility in water disposal options, subject to the detail of those options being included for your approval in the water management and monitoring plans required under recommended conditions 50 and 52.

Adjustment to disturbance limits (gas fields and gas transmission pipeline, condition 27)

APLNG have requested minor (10%) increases to the gas field disturbance limits specified for listed species and ecological communities in the proposed approval. This increase is to accommodate exploration activities and necessary fire breaks not accounted for in the proposed disturbance limits. The department recommends the change be accepted. Corresponding offset requirements have also been increased.

APLNG have also requested that the recommended conditions specifically provide that offset requirements of the pipeline for Brigalow and Semi-evergreen Vine Thicket ecological communities are contained in the gas field recommended approval. The department agrees to this change. The pipeline offset requirements for the two ecological communities is relatively minor. Combining the offset requirements for the gas fields approval will clarify overall impacts required for the Project and improve administrative simplicity. The department has therefore recommended a note to condition 27 to explain that requirements for offsets, for impacts from the pipeline, are contained in the recommended conditions for the gas fields.

Dredging (LNG facility, condition 1)

The proposed conditions included a reference to 500,000 m³ dredge spoil for construction dock access, based on previous advice from APLNG that this was the revised volume. The

ATTACHMENT A – EPBC Act Briefing Package

estimated and assessed volume for such dredging in the EIS was for 900,000 m³. In commenting on the proposed conditions APLNG advised that, even though it does intend to minimise dredging and is aiming for the lower volume of spoil, it would prefer to be conditioned to the larger volume as the nominal limit to allow for more detailed geotechnical investigation and risks once dredging commences. Potential impacts of the larger volume were addressed in the EIS and related documents and have been found to be acceptable. Recommended condition 2 of the approval therefore now incorporates reference to the volume of spoil as 900,000m³. APLNG was anxious for its approval to cover this dredging for the construction dock as the completion of the dock is important for their early project schedule in providing reliable direct access to the site.

Responses from Queensland

Comments on the proposed conditions were received from the Hon Stirling Hinchliffe MP on 18 February 2011 (Appendix C1). Minister Hinchliffe said he is satisfied the proposed conditions are, in general, consistent with those you imposed on the Santos and QGC projects. Comments were also received from the Queensland Department of Infrastructure and Planning (DIP) on 14 February 2010 (Appendix C2) in relation to the proposed gas fields conditions. The department's detailed responses to the comments received by the DIP are outlined at Appendix D4. DIP commented on conditions related to 'BTEX' chemicals, the groundwater model and reports associated with the Queensland assessment process. Their comments were:

1. (for condition 44b) thresholds for BTEX should be set at a reasonable and measurable limit. It is not practical or enforceable to prescribe a zero limit as labs will detect BTEX traces in concentrations as low as parts per billion. The Queensland Government is working through a process to develop a regulation that will establish maximum acceptable concentrations of BTEX chemicals;
2. (for conditions 62, 64, 65) conditions should be clear that it will be SEWPaC who will decide, whether the proponent's contribution to the QWC model meets condition 62a;
3. (for condition 80) it appears inappropriate to require the proponent to access and forward to the Commonwealth all reports on cumulative impacts prepared for the Queensland Government by its advisory bodies. An inter-governmental information-sharing mechanism may be more appropriate for this.

As discussed above, in relation to BTEX and 'fracking' issues, we suggest the same approach that you applied to the Santos and QGC gas field projects.

In relation to the second of these comments, no change is proposed. Your proposed conditions already included a definition of the 'department' which achieves the aim suggested by DIP.

In relation to the third comment, recommended condition 80 is consistent with similar requirements imposed for the Santos and QGC projects. The recommended condition is to ensure that the Commonwealth remains informed as to cumulative impacts which may be relevant to MNES. However, the department agrees that it would be appropriate for relevant Queensland government agencies to consent to the release of state-authored reports. A change has accordingly been recommended to condition 80, to provide for that consent.

Responses from Commonwealth Ministers

At the statutory due date for responses to your proposed decisions (16 February 2011) no comments have been received from Commonwealth Ministers or from their portfolio departments. Comments were however received from Commonwealth Ministers prior to your decisions on 22 October 2010 to approve the Santos and QGC projects. As noted above, we recommend that closely similar conditions be applied to the APLNG project.

ATTACHMENT A – EPBC Act Briefing Package

Changes to conditions

Details of the recommended changes to the proposed conditions for each project are set out in marked-up versions at Appendices E1-E3. Final versions of the recommended conditions for your signature, and which incorporate those changes, are in the proposed decision instruments at Appendices F1-F3.

Appendices:

- A Copy of Proposed Approval Decisions Brief on the APLNG Project (B11/37)
[NOT FOR SIGNATURE – this is a copy of previous briefing]
- B1-B4 Proponent's responses to proposed decisions
- C1 Response from the Hon Stirling Hinchliffe MP
- C2 Queensland Department of Infrastructure and Planning response to invitation for comment on proposed decisions
- D1 Recommended responses to proponent's comments on expansion of the coal seam gas fields
- D2 Recommended responses to proponent's comments on pipeline
- D3 Recommended responses to proponent's comments on LNG facility and ancillary onshore and marine facilities
- D4 Recommended responses to Queensland Department of Infrastructure and Planning
- E1 – E3 Recommended changes to proposed conditions (marked up)
- F1 Approval instrument for expansion of the coal seam gas fields (EPBC 2009/4974)
- F2 Approval instrument for the gas transmission pipeline (EPBC 2009/4976)
- F3 Approval instrument for the LNG facility and ancillary onshore and marine facilities (EPBC 2009/4977)
- G Notification letters to the proponent, relevant Commonwealth Ministers, and the relevant Queensland Minister

DEPARTMENT OF SUSTAINABILITY, ENVIRONMENT, WATER, POPULATION AND COMMUNITIES

Minister: For Decision

Brief No: B11/ 37 Division/Agency: Approvals and Wildlife Division
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**PROPOSED DECISIONS – AUSTRALIA PACIFIC LNG PROJECT
(EPBC 2009/4974, 2009/4976 and 2009/4977)**

Timing: We suggest 2 February 2011, to enable 10 business days mandatory consultation with Australian Government Ministers and the proponent to meet the final statutory approval deadline of 22 February 2011.

Recommendation:

That you consider the information and recommendations, and make the decisions set out in the EPBC Act briefing package in the Appendix.

Considered / Please discuss

Minister's signature:**Date:****Minister's comments:**

Key Points: The purpose of this brief is to present, for your consideration, proposed approval decisions and conditions for three proposals by Australia-Pacific LNG (APLNG), which collectively comprise the APLNG Project, in accordance with sections 130(1) and 133 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The APLNG Project was referred to the Department on 6 July 2009. The Project consists of three components: the development of the Walloons gas fields (EPBC 2009/4974), a gas transmission pipeline from the gas fields to Gladstone (EPBC 2009/4976), and a liquefied natural gas (LNG) plant on Curtis Island, north of Gladstone (EPBC 2009/4977). You must make separate decisions on each of these referrals although commercially they are one project.

APLNG is owned by ConocoPhillips (50 per cent) and Origin Energy (50 per cent). The components of the APLNG Project are similar in nature to the Santos and the British Gas/Queensland Gas Company (QGC) projects which you approved with conditions on 22 October 2010. However the APLNG Project is potentially larger. In particular, APLNG proposes to establish up to 10,000 coal seam gas production wells, compared to approximately 2,650 for the Santos project and 6,000 for the QGC project respectively.

Under the bilateral assessment agreement with Queensland, the APLNG project has been assessed by the proponent preparing an environmental impact statement (EIS), undertaking public consultation, and providing supplementary documentation, for a report by the Queensland Coordinator-General. On 9 November 2010, the Coordinator-General approved the project subject to conditions. In consideration of the scale and complexity of the APLNG project, on 10 December 2010 you extended the due date for a final EPBC decision on the project until 22 February 2010.

Expert advice on groundwater issues associated with the APLNG Project was received from Geoscience Australia and Dr M.A. Habermehl, as part of a combined request for advice on

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the APLNG, Santos, and QGC projects. The Water Group of the department has also provided advice on the APLNG project.

Issues/Sensitivities:

The APLNG project covers a very large geographic area, from the Surat Basin in Southern Queensland to the Port of Gladstone. The APLNG project is forecast by the Coordinator – General to stimulate an increase in Queensland's gross state product of approximately \$2 billion annually, and to create approximately 9,900 direct and indirect jobs.

The relevant environmental impacts of the projects are diverse and numerous. As there are uncertainties about impacts of coal seam gas water extraction at the regional scale, the department recommends a comprehensive groundwater management and monitoring framework, based on the principle of adaptive management, to provide strong protection for matters of national environmental significance. There will be impacts on various listed threatened and migratory species from activities including clearing and dredging. On the whole, these uncertainties and likely impacts are largely similar to those for the Santos and QGC coal seam gas projects, which you approved under the EPBC Act on 22 October 2010. As such, we have recommended relevantly similar conditions to manage the uncertainties and likely impacts as the conditions of your approval for those projects.

Media and Handling: Although open to you, it is not normal practice to release your proposed decision for public comment. In our view further public consultation, at this point in time, is unlikely to raise any issues that have not already been considered.

Approved by:

Peter Burnett
First Assistant Secretary
Approvals and Wildlife Division
Phone number: s. 47F(1)
Mobile: s. 47F(1)
Date: January 2011

Secondary Contact:
James Barker
A/g Assistant Secretary
Phone number: s. 47F(1)
Mobile: s. 47F(1)

Consultation: *Within department:* Great Barrier Reef Marine Park Authority, Marine Division, Heritage Division, Water Group. *Commonwealth departments and agencies:* Department of Prime Minister and Cabinet; Department of Resources, Energy and Tourism; Department of Industry, Transport and Resources; Department of Agriculture, Fisheries and Forestry; Department of Climate Change and Energy Efficiency; Treasury; Geoscience Australia. *Queensland departments:* Queensland Department of Infrastructure and Planning; Queensland Department of Environment and Resource Management.

cc: s. 22(1)(a)(ii) (GBRMPA), s. 22(1)(a)(ii) (Marine Division), s. 22(1)(a)(ii) (Heritage Division), s. 22(1)(a)(ii) (Water Group)

Appendix: EPBC Act Briefing Package

APPENDIX TO B11/37 - APLNG PROJECT

Overview:

The Australia Pacific LNG Project (the APLNG project) comprises 3 proposals on which you must make a decision under the EPBC Act. If you approved it, it would be the third major LNG project for the export of LNG from Gladstone in Queensland: You approved similar proposals by Santos and Queensland Gas Company (QGC) on 22 October 2010. If also approved by you, the APLNG project would comprise: the development of the Walloons gas fields (EPBC 2009/4974), a gas transmission pipeline from the gas fields to Gladstone (EPBC 2009/4976), and a Liquefied Natural Gas (LNG) plant on Curtis Island, north of Gladstone (EPBC 2009/4977).

Maps indicating the proposed gas fields, the associated gas transmission pipeline, the footprint of LNG facilities and marine facilities on Curtis Island are at Attachments A1-A3. Expert advice relating to APLNG project (and the Santos and QGC project) is at Attachments B1-B3.

A detailed description of possible impacts, mitigation measures, and the department's recommendations are set out in the Department's advice for each referral, at Attachments C, D and E, and the proposed conditions at Attachments F, G and H, which are closely based on the conditions imposed on the Santos and QGC projects. A description of each component of the APLNG project, and its impacts on matters of national environmental significance, is also contained in the Queensland Coordinator-General's report at Attachment I. That report is based on the proponent's environmental impact statement (EIS) at Attachment J.

Key recommendations

In summary, we recommend that you propose to approve each of the referrals for the APLNG Project, subject to the recommended conditions to manage, mitigate and offset the impacts, uncertainties and risks. The department considers that the likely impacts on matters protected by the EPBC Act are acceptable with the recommended conditions, and having regard to the likely social and economic benefits.

Key issues

Although together the proposals involve potentially diverse and numerous impacts on matters of national environmental significance (NES) across a geographic area of 570,000 ha, our view is that the following are the primary issues relevant to your decisions, and the primary mechanisms to manage those issues (each of which is described in more detail elsewhere in this Appendix and in the attachments):

Extraction of CSG Water

- for the proposed gas fields (2009/4974) – there are uncertainties of groundwater impacts from extraction of significant volumes of CSG water ('associated water'), including impacts on regional aquifers of the Great Artesian Basin (GAB). Independent expert advice was been obtained on these impacts from Geoscience Australia on 17 September 2010 (Attachment B1). In particular, the advice notes that the risk of impact from groundwater extraction in individual operations on the EPBC Act listed endangered ecological community '*The community of native species dependent on natural discharge of groundwater from the Great Artesian Basin*' is low but there are levels of uncertainty in relation to cumulative impacts at a regional scale. Geoscience Australia has therefore recommended a precautionary approach should be taken to approving CSG developments.

- The advice concludes that it should be possible to manage the impacts of multiple CSG developments if particular precautionary actions are taken, including in recognition that current regional groundwater modelling is inadequate to fully assess the impacts of multiple CSG developments on groundwater interactions. Specifically, the Geoscience Australia report raises the option of requiring reinjection of treated water.
- Consistent with the final approval decisions for the Santos and QGC projects, we do not recommend reinjection as a blanket requirement, but as a risk management measure as part of a broader groundwater management and monitoring framework. This would provide greater flexibility for the proponent, while maintaining strong protection for matters of national environmental significance. The recommended framework allows for groundwater drawdown thresholds based on conservative estimates derived from the proponent's own modelling. In the first 24 months after approval, those base level thresholds cannot be exceeded. After that 24 month period, if the approved thresholds are exceeded, the proponent must implement response measures, such as re-injection, to maintain aquifer pressure. The framework allows the proponent to avoid trigger and response requirements if it can demonstrate, to your satisfaction, that a targeted aquifer is not hydraulically connected to others.
- As approved by you in relation of the QGC and Santos projects, we recommend that an independent expert panel also provide advice to you on appropriate groundwater threshold values for the APLNG project, and APLNG's water management plans and compliance with those plans.

Uncertainty about impacts

- for the proposed gas fields (2009/4974) – there is inherent uncertainty about impacts on matters of NES from surface water management and the location of infrastructure. The location of infrastructure over the life of the project (some 10,000 wells, together with approximately 10,000 km of gas gathering pipelines and roads/access tracks) has not been determined with certainty, and the size of the gas fields area means that it is not possible to identify detailed environmental impacts with precision. APLNG does not have definite proposals for the management of CSG water on the surface. Proposed conditions to manage these uncertainties are described in the relevant Departmental advice (Attachment C).

Impacts on World and National Heritage values

- for the proposed LNG plant and associated marine facilities and onshore works (2009/4977) – there will be impacts on World Heritage and National Heritage values. If approved, the proposed LNG facility would (as with those already approved for Santos and QGC) be within the Great Barrier Reef World Heritage Area, albeit also within the Port of Gladstone in a relatively degraded area with vistas of the existing Gladstone industrial areas and no line of sight from the reef side of the island. Our view is that, subject to appropriate conditions, the proposed facility would not have unacceptable impacts on the World Heritage or National Heritage values. Proposed conditions to mitigate impacts on World and National Heritage values in this respect are described in the relevant departmental advice at Attachment H.

Cumulative impacts

- there will be cumulative impacts from the APLNG referrals, together with the previously approved QGC and Santos projects (detailed in B10/1913; B10/1914; B10/2199; B10/2223; B10/2261; B10/2263) and, if you were also to approve them, other forthcoming Gladstone coal seam gas/LNG proposals from Shell and Arrow Energy. The APLNG project is the third large-scale coal seam gas proposal to come before you under the EPBC Act in which cumulative impacts will arise at around the same time and within a similar geographic area. We consider that, if regional scale modelling and adaptive management is developed, and in line with the Geoscience Australia recommendations, cumulative impacts should be able to be managed appropriately.

- Consistent with your approvals for the Santos and QGC projects, we recommend that you condition any approval to require that to be done. The issue of cumulative impacts is addressed further in this Appendix and in the Department advice dealing with each of the referrals which comprise the APLNG project.

This brief, and each Department advice, refers to information on the relevant impacts of the actions contained in APLNG's Environmental Impact Statement (EIS) and in supplementary information provided by APLNG. The EIS and supplementary information are at Attachments J and K.

Background

Summary of APLNG's referrals

APLNG's gas fields are around the towns of Wandoan in the north of the tenements, Miles in the centre of the tenements, and Chinchilla, Kogan and Dalby in the south (see the map Attachment A1 and the AO map included in this briefing package). The gas fields would be connected by a gas transmission pipeline to an LNG liquefaction and export facility on Curtis Island, immediately north of Gladstone, Queensland (see map at Attachment A2). While forming part of the Port of Gladstone, Curtis Island is in the Great Barrier Reef World and National Heritage area. CSG will be transported to an LNG facility on Curtis Island (see map at Attachment A3), via the gas pipeline network.

Submission of separate referrals

The APLNG Project was referred to the Department on 6 July 2009. The designated proponent for the referrals is Australia-Pacific LNG (APLNG). APLNG is owned by ConocoPhillips (50 per cent) and Origin Energy (50 per cent). The proposed actions were referred separately under the EPBC Act to enable APLNG the option to transfer ownership of individual components of the project - should they be approved - to third parties in the future, together with the associated environmental approvals. (The EPBC Act does not provide for the partial transfer of an approval.)

In accepting the referrals separately, the department considered that, as all components were nominated as controlled actions and were to be assessed, in effect, by a single process, the approach would allow for an adequate assessment of the impacts of the actions for the purpose of the EPBC Act.

'Controlled action' decisions

On 3 August 2009, your delegate determined that each of the referrals was a controlled action under s.75 of the EPBC Act, because of possible impacts on matters of national environmental significance. The controlling provisions for the coal seam gas fields proposal were determined to be:

- Ramsar wetlands (sections 16 & 17B),
- listed threatened species and communities (sections 18 & 18A), and
- listed migratory species (sections 20 & 20A).

For the pipeline and LNG plant proposals, the controlling provisions are

- World Heritage (sections 12 & 15A),
- National Heritage Places (sections 15B & 15C),
- listed threatened species and communities (sections 18 & 18A), and
- listed migratory species (sections 20 & 20A).

Because of the decision under s.75 of the EPBC Act, the proposed actions were required to be assessed and a decision made on whether to approve them under ss.130 and 133 of the EPBC Act.

Bilateral assessment

In accordance with the Bilateral Agreement with Queensland, each component of the project was assessed under Part 4 of the Queensland *State Development and Public Works Organisation Act 1971* and the *State Development and Public Works Organisation Regulation 1999*. This assessment process is used where the Queensland Coordinator-General declares that the proposed action is a significant project for which an environmental impact statement (EIS) is required. The Coordinator-General made such a declaration on 9 April 2009. APLNG lodged a draft EIS with the Coordinator-General on 29 January 2010 which was reviewed and released for a five week consultation period closing 4 May 2010. A total of 36 submissions were received, consisting of 18 submissions from advisory agencies, 5 from the public and 13 from non-government organisations. On 19 July 2010, the Coordinator-General requested that APLNG undertake supplementary work to assist in his evaluation of the EIS. This work was completed in mid August 2010 and the results of various studies undertaken are in the supplementary information at Attachment K.

The Coordinator-General's report was received by the department on 9 November 2010 (Attachment I). The Coordinator-General's report is an 'assessment report' on each of the referrals for the purpose of the EPBC Act. It is a report which you must consider under s.136 of the EPBC Act in deciding whether or not to approve each of the proposed actions.

Public comment

Relevant matters raised in public and State agency comments on the EIS included concerns about a broad variety of matters, including economic and social matters (including e.g. issues relating to water resources, social impacts such as on housing, traffic and transport, and terrestrial, aquatic and marine ecology).

In relation directly to the gas fields, submissions raised matters including:

- impacts on aquatic ecology and mitigation measures that should be undertaken, for example, discharge of treated associated water into natural water bodies;
- management of associated water produced from coal seam gas extraction, including issues relating to reinjection and brine management, salt management; and the management of its impact on soils, surface water and groundwater;
- cumulative impacts of multiple CSG operations, including impacts relating to ground and surface water; impacts on good quality agricultural land;
- impacts of groundwater extraction on the GAB, including GAB springs.

In relation directly to the pipeline and the LNG plant, these included:

- potential impacts, including cumulative impacts, on coastal wetlands and marine ecology from pipeline across the Narrows and Kangaroo Island wetlands;
- impacts associated with the construction of the pipeline and LNG facility through sensitive terrestrial flora and fauna and ecological communities;
- impacts on the Gladstone Port marine environment, including impacts from increases of shipping within Gladstone Harbour;
- impacts on World Heritage values of Curtis Island.

A table summary of the matters raised in public submissions on the EIS, and the proponent's responses, is at Attachment L1, and a copy of the public submissions is at Attachment L2. A number of issues were raised in the public submissions that were not directly relevant to the assessment of impacts on matters protected under the EPBC Act. These include, for example, concerns about risks to public health from CSG well activity; risks of impacts on agricultural

land and water use; risks of contamination of groundwater from chemicals used in the CSG extraction, from the process called 'fracking'.

These and other matters are, however, discussed in the Coordinator-General's report and are relevant social and economic matters which you must take into account (but cannot condition) when you make a decision whether to approve the proposals. (You may only impose conditions that protect one or more of the relevant controlling provisions or repair or mitigate damage to the controlling provisions.)

The APLNG proposal and other Gladstone LNG projects generally have been subject to ongoing media attention and considerable opposition from community groups and campaigners. Examples of some more recent media relating to coal seam gas projects in southern Queensland are at Attachment L3. Also, for example, the Western Downs Alliance (WDA) has been formed in the Queensland region of Tara to convey community concerns about CSG activity to government. The group is active through the website <http://tararuralgroup.com>. The Central Downs Irrigators Limited (CDI) commissioned a report which CDI says "provides conclusive proof that a moratorium is required on all further CSG development". A copy of the CDI's report - which relates to the vicinity of the APLNG (and QGC) tenements is at Attachment L4.

Outcome of the Coordinator-General's report

The Coordinator-General's summary conclusions in relation to each component of the APLNG project were as follows:

- In relation to the gas fields – The Coordinator-General notes the EIS conclusion that no action related to the gas fields will have a significant impact on the elements subject to the relevant controlling provisions on the basis that the proposed mitigation and offset measures are fully implemented. The Coordinator-General concurs with the EIS assessment of the proposed clearing for the gas fields and other works against the significant impact criteria for EPBC-listed threatened species and ecological communities to be that no significant impacts are predicted;
- In relation to the pipeline – The Coordinator-General notes the EIS conclusion that there would be no significant impacts from the proposed clearing for the pipeline right of way and other works, on the basis that the proposed mitigation and offset measures are fully implemented. The Coordinator-General concurs with this assessment. The Coordinator-General also concurred with the EIS conclusions that there are potential significant impacts predicted on a temporary basis during the construction period; however, no significant long-term impacts are predicted for the operational period.
- In relation to the LNG Plant – The Coordinator-General concurs with the EIS assessment that the proposed LNG facility will not impact upon any threatened communities and threatened species. The Coordinator-General concurs with the EIS conclusions of potentially minor impacts due to the loss or disturbance of habitat areas for migratory birds, particularly within the intertidal zone, and minor impacts on migratory marine species on a temporary basis during the construction period caused by dredging and underwater noise sources. In relation to impacts on World and National Heritage Values from the location of the LNG Plant on Curtis Island, the Coordinator-General considered that the relevant impacts would be minor, and that mitigation and management measures are designed to limit these impacts on matters of national environmental significance.

In making his conclusions, the Coordinator-General also referred to conditions he imposed on the project. Under s.134(4) of the EPBC Act, in contemplating approval of a proposed action, you must consider any relevant conditions that have been imposed under a law of the State, which includes the conditions imposed by the Coordinator-General. Those conditions are set out at Appendices 1-4 of the Coordinator-General's report. Where relevant and appropriate, we

have proposed conditions that are aligned with those imposed by the Coordinator-General.

If you decide to approve the proposals, we would recommend that you consider some additional conditions to those imposed by the Coordinator-General, as discussed in more detail in each departmental advice at Attachments C, D and E. (Similar approaches were recommended in relation to the already approved Santos and QGC coal seam gas proposals.) Additional conditions are recommended as the department does not agree with the full extent of the Coordinator-General's conclusions about the potential impacts on matters of NES. The department's conclusions in relation to the matters likely to be impacted by each component of the project (which also refer to the related conclusions of the Coordinator-General) are set out in each departmental advice.

Extension of due date for decision

The receipt of the Coordinator-General's report triggered the 30 business day deadline for your decision on the APLNG project (within which, 10 business days is required for comment on a proposed decision). As that timeframe was not practical to allow a proper assessment of a project of this size, on 10 December 2010 you extended the due date for your decision until 22 February 2011 (B10/2475).

Reports of findings of 'BTEX' chemicals

In October and November 2010 there was media attention around reports of 'BTEX' chemicals (Benzene, Toluene, Ethylbenzene and Xylene) in Australia Pacific LNG's existing CSG exploration activity. APLNG met with the department (and responsible Queensland state agencies) and provided information on its investigation. The Director-General of the Queensland Department of Environment and Resource Management wrote to the A/g Secretary on this issue on 19 October and 11 November 2010, noting that there was no impacts on landowner bores and no evidence of environmental harm from this incident. From information provided to the department by APLNG, the findings of BTEX chemicals were are very low levels: in most cases below levels set for BTEX chemicals in the Australian Drinking Water Guidelines.

Issues of groundwater contamination are primarily a matter for the State, including in relation to potential impacts on landowner bores and arable land. However, the recommended conditions would also require APLNG to address water quality risk mitigation measures in a water management plan for your approval, to ensure that any residual risks to matters of national environmental significance are adequately addressed.

Recommendations on each referral

Overview

The assessment of each separate proposal is limited to impacts on the relevant matters protected under Part 3 of the EPBC Act. In considering any approval decision on the components of this project, you are required to take into account all the information you have about the relevant impacts of the referred actions and a number of other matters (s.136(2) EPBC Act). A summary of the department's conclusions in relation to the impacts of each referral is provided below, under corresponding headings (which also indicate the relevant attachment for the more detailed departmental advice).

Cumulative impacts

The referrals from APLNG are similar to proposals by a number of other proponents for the development of CSG fields in the Surat and Bowen basins, for the export of LNG from the Port of Gladstone in Queensland. In addition to the proposal by APLNG, there are approved projects by Santos; BG/QGC; and proposals by Shell CSG (Australia) Pty Ltd (EIS currently being prepared) and Arrow Energy (EIS currently being prepared).

The relationship of these referrals from APLNG, and those of other proponents, raises issues of cumulative impacts on matters of NES. This brief discusses likely cumulative impacts of the various components of APLNG's referrals, together with the impacts of the other CSG proposals. Legal advice from the Australian Government Solicitor (Attachment M) confirms that you may take into account cumulative impacts when approving or refusing actions under Part 9 of the EPBC Act. To allow you to have regard to cumulative impacts of other related CSG proposals, in addition to those you have already approved, the referrals from Shell and Arrow Energy, are at Attachment N1-N3 (on CD).

1. EPBC 2009/4974 - coal seam gas (CSG) fields expansion (Attachment C)

Proposed gas fields expansion

APLNG proposes to extract coal seam gas from the Walloons gas fields. Those fields cover an area of approximately 570,000 ha (approximately 5,700 km²) in the eastern part of the Surat Basin. The gas fields are located within the local government boundaries of the Maranoa, Western Downs and Toowoomba Regional Councils. The gas fields are contiguous to gas fields proposed to be developed by QGC, under the approval given by you on 22 October 2010 (EPBC 2008/4398), and to the south-east of the gas fields proposed by Santos which you also approved on 22 October 2010 (EPBC 2008/4059).

The APLNG gas fields will be progressively developed around a 30 year timeframe and will ultimately require the following infrastructure: up to 10,000 wells with a maximum of 600 wells drilled per year; underground gas and water gathering networks; water transfer stations; gas processing facilities; water treatment facilities; brine ponds; underground high pressure gas pipeline network; warehouses and administration buildings. There will also be associated infrastructure including: access roads, telecommunications, sewage infrastructure and temporary and permanent accommodation facilities.

The following are the principal issues relating to impacts of the proposed gas fields. Further detail in relation to impacts on matters of NES is set out in each departmental advice at Attachments C, D and E.

Groundwater

APLNG has estimated that releasing the CSG from the Walloon strata will generate CSG water volumes approximating 100 ML per day within the first 5 years of the project development. The volumes will peak at around 170ML per day within the first 20 years of the project (noted by Geoscience Australia; 145 ML per day noted by the Queensland Coordinator General) however, as noted by Geoscience Australia, there remains a high level of uncertainty around the magnitude and timing of this estimate. For comparative purposes, a standard 50m x 25m swimming Olympic sized swimming pool contains 2.5 ML of water, so 170 ML per day is the equivalent of 68 swimming pools per day). The Coordinator-General estimated that some 1085 GL of CSG water could be extracted over the 30 year life of the project - which is roughly the same volume as the storage capacity (1165 GL) of the Wivenhoe Dam, which is the largest dam in south east Queensland.

The CSG water will be piped to collection points, treated for re-use or disposal. Basic water management infrastructure will include water transfer stations to assist in pumping water to the nearest water treatment plant. The transfer stations consisting of a lined pond, a pump and a power generator will be located near access tracks and fencing where possible. By 2045 it is predicted that the CSG water extraction volume will cease.

The CSG field activity raises risks relating to groundwater, including risks of adverse impacts on regional and local aquifer systems and the GAB, from CSG water extraction. The possible impacts on GAB aquifers, which potentially involves widespread impacts on landowners and land use, comprises an economic and social matter to which you must have regard under s.136(1)(b) of the EPBC Act.

In the assessment process, there were also questions of risk to the EPBC listed endangered ecological community, *The community of native species dependent on natural discharge of groundwater from the Great Artesian Basin*. The EPBC Act Recovery Plan (February 2010 – at Attachment C2) for the GAB springs refers to the extraction of CSG as an emerging industry within the GAB and concludes that there is a clear need to monitor the impacts of these extractive industries on GAB groundwater, and to ensure future water allocations preserve spring flow. GAB springs and other springs may also provide habitat for separately listed EPBC threatened or migratory species. While Geoscience Australia has advised that on the basis of currently available data, the risk to GAB springs may be low, as a precautionary measure, we have recommended conditions for the ongoing monitoring of GAB springs and other EPBC Listed matters that are reliant on groundwater. APLNG considers it very unlikely any discharge (i.e. GAB) springs occur in the area of potential drawdown from their CSG activities, although the Coordinator-General found that the full extent of actual impacts requires further investigation.

Surface water

The CSG field activity also poses risks relating to CSG water management on the surface. The uncertainty around infrastructure locations in the gas fields, as well as precise species distribution, means that it is difficult to identify with certainty the impacts of CSG water management on matters protected under the EPBC Act. CSG water typically contains high salt concentrations and has a high sodium absorption ratio, which means that it would be likely to cause environmental harm if it were released in significant volumes to land or surface waters. For example, the EIS and Coordinator-General's report estimates that approximately 2 million tonnes of chemical salts (comprising a range of chemical components/contaminants) will potentially be brought to the land surface as part of APLNG activities over the next 30 years.

Direct impacts on matters of NES

There are also likely to be direct impacts on matters of NES from the proposed gas fields operations. Impacts from the gas fields will likely include some clearing of EPBC listed flora species and ecological communities for linear (e.g. access tracks) and fixed infrastructure (e.g. well pads), and possible impacts on terrestrial and aquatic fauna and flora. While the EIS contains an estimate, it is not possible to predict these impacts with any precision over the 30 year life of the project. This is because the location and actual number of gas wells and associated infrastructure in particular areas of the gas fields is not yet finally determined.

Independent Expert Advice on Groundwater

Expert advice on groundwater issues has been received from Geoscience Australia on 17 September 2010 (at [Attachment B1](#)). Geoscience Australia's advice relates to APLNG, as well as the approved Santos and QGC projects. In relation to APLNG, Geoscience Australia's conclusions included that: APLNG's modelling results requires further work to fully establish uncertainties; potential impacts on aquifer interaction have been adequately assessed; the groundwater related risks to the EPBC listed GAB spring community is low; there is a low risk to recharge into the GAB; the risks posed by 'fracking' to aquifers and aquitards are low; there is a likelihood of subsidence; there is limited likelihood of impacts on MDB groundwater or connected surface water resources.

In relation to all the CSG developments considered, Geoscience Australia concluded that there are high levels of uncertainty in the predicted impacts of CSG development on groundwater behaviour and on EPBC listed ecological communities. In recognition of this, Geoscience

Australia made a number of recommendations to further mitigate risks associated with the project. The proposed recommendations for the gas fields give effect to those recommendations, and are based on similar conditions you imposed on the Santos and QGC gas field projects. In particular, this includes a proposed conditions that, if certain drawdown trigger levels set by you are reached, APLNG will be required to implement response measures to re-establish pre-development groundwater pressure levels. This may include re-injection of treated associated water back into appropriate permeable formations. If APLNG can demonstrate that a particular coal seam aquifer from which CSG water is being extracted is not hydraulically connected to other aquifers, then the trigger levels and response measures will not apply.

Further, the Department believes that the depletion of regional aquifers would inevitably lead to impacts on regional ecosystems and species, including those which may be protected under the EPBC Act. In the absence of any adequate regional models, it is impossible to specify which particular EPBC matters may be at risk. If unacceptable drawdown thresholds were reached, strategies to repressurise aquifers generally within the region can be expected to mitigate such risks. Under s.391 of the EPBC Act, you must also consider the precautionary principle. Taking a precautionary approach, similar mitigation measures to those applied in relation to the similar Santos and QGC gas field proposals are therefore strongly recommended.

Water Group advice

The Water Group of the department provided updated advice, including in relation to the APLNG gas fields proposal, and cumulative impacts relating to the APLNG project with those already approved for Santos and QGC. That advice has been updated following the further assessment by Water Group of the APLNG EIS, as well as further information provided by other proponents. The overall conclusions in that advice remain essentially the same as the Water Group advice which informed your decisions on the Santos and QGC gas field proposals. Accordingly, that advice provides additional support for adopting similar precautionary conditions to those imposed on the Santos and QGC project.

The updated Water Group advice notes, among other things:

- risks of impacts to threatened ecological communities from cumulative drawdown effects from all three proponents (APLNG, Santos, and QGC);
- risks of impacts to the Narran Lakes Ramsar wetlands. The main concern is large scale flood events, as seen recently in southeast Queensland, which could overtop the brine storage basins thereby mobilising salts and associated heavy metals downstream and into the Narran Lakes.
- the similar conclusions of the Water Act study (outlined below) to the advice from Geoscience Australia in relation to proponents' tenements which overlie alluvium (including those of APLNG).

Water Act study

On 10 December 2010 you released an independent study (at Attachment B2) undertaken for the purpose of the Water Act 2007, which requires an independent study in certain circumstances relating to state mining licences. The study related to impacts of the proposed CSG operations on the connectivity of groundwater systems, surface water and groundwater flows and water quality in the Murray-Darling Basin. The findings of the study are relevantly consistent with the advice provided by Geoscience Australia, and therefore provides additional support for the recommended conditions.

Conclusion on acceptability of impacts

The level of uncertainty of impacts from the proposed gas fields development has presented novel challenges, as traditionally the area and nature of impacts is reasonably well defined for

a decision to be made under the EPBC Act. Having regard to the expert advice provided by Geoscience Australia and Water Group, and the information provided by APLNG, the department considers that the risks of direct and indirect impacts on matters of NES from groundwater effects can be appropriately managed with the proposed conditions tailored to address those risks. The department has also had regard to measures being taken by the State to manage likely ground water and surface water impacts relating to CSG activities.

Consistently with conditions imposed on the Santos and QGC projects, we have recommended other conditions and mitigation strategies to manage impacts on matters of NES, including:

- water management and monitoring strategies to ensure avoidance of impacts on matters of NES from CSG water extracted from aquifers and the management of that water once extracted;
- a 'ceiling' on the maximum area of disturbance to listed ecological communities and habitat for threatened species which may be impacted by the APLNG project;
- in addition to the ceiling on disturbance, field management protocols to avoid and minimise impacts to listed species and communities;
- significant upfront commitments to offsets. The amount of habitat-related offsets have been calibrated by reference to the maximum allowable 'ceilings' on disturbance;
- independent audits.

With these conditions, the department considers that the likely impacts are acceptable, and the risks of impacts can be appropriately managed.

2. EPBC 2009/4976 - gas transmission pipeline (Attachment D)

Proposed pipeline

A buried high pressure gas pipeline network will transport dehydrated and compressed CSG from the Walloons gas fields to the LNG facility on Curtis Island. The gas pipeline network will consist of a 450 km main gas pipeline to connect the Walloons gas fields with the LNG facility on Curtis Island. The gas pipeline has been designed to meet the 18 mtpa ultimate capacity of the LNG plant. The gas pipeline will also require above ground facilities including gas compression facilities.

Likely EPBC impacts

The pipeline traverses predominantly cleared areas, but will transect small areas of EPBC listed ecological communities and habitat for EPBC listed species. To access Curtis Island, the pipeline route also crosses the Kangaroo Island Wetlands and 'The Narrows', through a state development corridor shared with Queensland Gas Company. The Narrows is one of only five narrow tidal passages separating large continental islands from mainland Australia, and is within the Great Barrier Reef World and National Heritage Area. In contrast with the gas fields, these impacts can be identified with more certainty. For the pipeline there will, for example, be impacts on listed threatened species (including e.g. clearance of the endangered plant, *Cycas megacarpa* from the pipeline right of way) and migratory species (e.g. impacts on listed migratory shorebirds from construction of the pipeline across the Kangaroo Island wetlands and The Narrows in Gladstone).

Conclusion on acceptability of impacts

The likely impacts associated with the pipeline are reasonably well-known. We have recommended conditions similar to those imposed on the recent approval for the QGC and Santos pipelines which has close similarities in scale and nature to this proposed pipeline. For identified species that will be impacted stringent conditions are recommended to mitigate impacts and, where mitigation is not possible, require substantial offsets.

Areas of concern principally relate to the approach to, and crossing of, the Kangaroo Island Wetlands and The Narrows. To minimise the short-term environmental impacts of the crossing construction, we have proposed conditions similar to those imposed by the Coordinator-General for a bundled crossing of The Narrows, to minimise potential impacts from otherwise separate disturbances from multiple proponents.

For the crossing of the Kangaroo Island wetlands and The Narrows, the department understands that APLNG has made a commercial arrangement with QGC, by which QGC will manage a bundled crossing of pipelines for both projects. While QGC's EPBC Act approval is sufficient for it to undertake (on behalf of multiple proponents) a bundled crossing, the department recommends that conditions also be attached to APLNG's approval for this pipeline crossing. This will ensure that the crossing remains appropriately conditioned if those commercial arrangements change.

The recommended conditions require the proponent to finalise an Environmental Management Plan for the final construction method for The Narrows crossing. Under this approach, the final crossing method will be subject to a later approval by you or your delegate, and would allow the opportunity for independent expert review of a detailed crossing proposal should that prove necessary. The proposed conditions also require further studies and management plans, including a site-specific acid sulfate soil management plan, and management plans for likely impacts of the crossing on marine fauna and flora, and listed migratory birds. In practice, it is likely that this process will be facilitated by QGC. However, the conditions will ensure that APLNG also remains liable for its share of the pipeline crossing.

3. EPBC 2009/4977 - LNG facility (Attachment E)

LNG Facility

APLNG propose to site an LNG processing facility on Curtis Island, adjacent to the LNG facilities approved by you for Santos and QGC. The major components of the proposed LNG facility include gas processing facilities to remove impurities and refrigerate the CSG; storage tanks; and plant infrastructure and utilities.

It will also include a materials off-loading facility which will also serve as a ferry terminal for the transfer of construction materials and heavy equipment to the project site; a jetty and loading berths to transfer LNG product to tankers for shipping; and temporary facilities including a construction ferry dock and temporary accommodation facility. The APLNG LNG plant site would have a total footprint of approximately 230.5 ha.

The LNG facility will be developed in stages to a maximum ultimate capacity of approximately 18 mega tons per annum (mtpa) of LNG, comprising four processing facilities or production "trains", each of approximately 4.5 mtpa. The project is, however, to be staged, with trains 1 and 2 scheduled for construction in 2014/2015 and construction of trains 3 and 4 at a future date subject to market conditions and gas field development. As noted by the Coordinator-General, indications from APLNG are that trains 3 and 4 could come online around 2017/2018.

Associated with the LNG facility, APLNG proposes to build marine facilities (including wharves and jetties). The construction of marine facilities will involve associated dredging which will, together with dredging already approved for the Santos and QGC projects and the Western Basin Strategic Dredging and Disposal Project (D2009-4904), contribute to impacts on the marine environment in the Port of Gladstone. The most recent information provided by APLNG to the department is that it proposes to undertake dredging of approximately 500,000 m³ of material for the marine facilities. A larger program of dredging ('capital dredging') of approach channels, and of the Port of Gladstone to accommodate LNG tankers, will be undertaken by the Gladstone Ports Corporation (GPC) under EPBC 2009/4904 and state approvals. For the

relatively smaller program of dredging to be undertaken by APLNG, conditions are recommended that are relevantly consistent with the EPBC conditions you imposed on the GPC and the dredging related conditions for the Santos and QGC marine facilities proposals.

Likely impacts – LNG facility site

Curtis Island is one of the five major coastal islands in the Great Barrier Reef World Heritage Area (GBRWHA) and in this context relates to visual and geological World Heritage values. The World Heritage values for which the GBR is listed are at Attachment E3. (The EPBC Act only protects the *values* of a World Heritage place, rather than the *area per se*.) The southern part of the Island has relatively low ecological values and is degraded from grazing, weeds and feral animals.

The GBRWHA is a multi use area that supports large commercial fisheries and major shipping routes pass through it (Great Barrier Reef Outlook Report 2009). There are 10 major trading ports along the Barrier Reef coast. The waters of most of these ports are within the Great Barrier Reef Region and WHA, but not within the Great Barrier Reef Marine Park.

The proposed LNG facility will have some impacts on the values of the GBRWHA, although in our view they will be minor and, because of this, can be mitigated and offset through conditions. Relevant impacts on World Heritage values include impacts from changes to visual amenity, light and flaring, and loss of vegetation associated with site clearance.

Impacts on National Heritage values of the area will arise from similar impacts to those on World Heritage values. Impacts on listed threatened and migratory species will include impacts from clearing of habitat, indirect impacts from the substantial workforce on Curtis Island for the project and the surrounding area, including increased recreational use (e.g. fishing) and marine transport; and potential cumulative impacts of a peak workforce of between 9000 – 12,600 for all 4 proposed LNG projects (APLNG, Santos, QGC and Shell). The likely direct and indirect impacts have been addressed by the proposed conditions.

Likely impacts – dredging associated with marine facilities

The likely impacts relating to the marine facilities may include impacts on listed threatened species and migratory species, including species which are part of the values of the GBRWHA. The Project is likely to have impacts on the marine environment, including particularly impacts arising from the proposed dredging. Potential impacts include: removal of benthic communities; damage to saltmarsh, seagrass, and mangrove habitats, or species. Other impacts may include changes to the marine environment through the introduction of jetty structures to accommodate LNG tankers that may also impact on hydrodynamics and erosion and deposition processes. The construction of the marine facilities within the boundary of the GBR World and National Heritage area also raises similar heritage issues to those mentioned above in relation to the proposed LNG facility.

World Heritage Convention

Among other things, under s.137(a) of the EPBC Act, in deciding whether to approve a proposed action and what conditions to attach, you must not act inconsistently with Australia's obligations under the World Heritage Convention. That Convention includes obligations on the Commonwealth (article 6(3)) not to take any deliberate measures which might damage directly or indirectly the natural heritage of sites mentioned in article 2 of the Convention. Having regard to the matters set out above and in the attached department advice (Attachment E), the department considers that a decision to approve the LNG facility (and the pipeline), would not be inconsistent with Australia's obligations under the World Heritage Convention. In summary, this is because the physical impacts inside the GBRWHA are minor in the context of the overall size of the GBRWHA (the LNG facility site of 230.5 ha represents .0000057% of the GBRWHA); the area in question has relatively low ecological values and is degraded from grazing, weeds and feral animals; and visual impacts, being confined to the existing Gladstone

industrial vista on the western side of the island, are relatively minor. These impacts can be mitigated or offset.

Conclusion on acceptability of impacts

The department considers that the relevant impacts of the proposed LNG facility are not unacceptable, having regard to the location within the Port of Gladstone, the relatively degraded character of southern Curtis Island; the fact that the site does not act as core habitat for any terrestrial species listed under the EPBC Act; the minor nature of World and National Heritage impacts in context; because the recommended conditions confine the footprint of the action to the industrial precinct on the harbour side of Curtis Island, and require a package of direct and indirect offsets that would operate in relation to the World and National Heritage values of the area.

The department also considers that the relevant impacts of the proposed marine facilities, associated with the LNG facility, are not unacceptable, having regard to the proposed conditions and mitigation measures. Relatively standard conditions have been proposed to avoid and mitigate likely impacts associated with the construction of the marine facilities, including impacts arising from dredging, pile driving, noise and vibration. Taking into account the smaller scale of impacts associated with marine facilities and more strategic offset measures proposed under the larger Western Basin Dredging project being undertaken by the Gladstone Ports Corporation (under approval EPBC 2009/4904), to which this proponent will contribute, no offsets are proposed specific to this referral.

Comments on conditions from APLNG

In anticipation of receiving an approval decision from you imposing similar conditions to those imposed on QGC and Santos, on 12 November 2010 APLNG provided comments on those conditions (Attachment O1. department's responses to those comments are at Attachment O2). The company was generally accepting of the conditions and their comments generally concerned matters of technical detail. APLNG also expressed concern at some of the approaches applied to QGC and Santos (e.g. that the proposed 9 month timeframe for springs surveys would be difficult to achieve). The department has taken those comments into account in recommending the proposed conditions. The department has also had regard to the recent flooding in southern Queensland for the timing of certain requirements in the proposed conditions (e.g. timing for the completion ecological surveys).

However, as far as possible, the department has recommended relevantly similar conditions to those attached to your approvals for Santos and QGC, except where the detail of the APLNG project justified a different approach. This has resulted in a number of minor differences between the conditions for APLNG, and those imposed on Santos and QGC, including:

For the gas fields:

- as Ramsar wetlands was identified as a controlling provision for APLNG (but not for the Santos and QGC projects) there is a condition requiring no unacceptable impacts to the Narran Lakes Ramsar listed Wetlands;
- The conditions identify a different species composition (for which disturbance limits apply or which require specific management measures) within the APLNG CSG fields, which reflects differences in gas fields environment and intensive field study effort by proponent.

For the pipeline:

- the conditions identify a different species composition (for which disturbance limits apply or which require specific management measures) within the pipeline right of way;

- the APLNG proposed pipeline route crosses Cockatoo Creek - a sensitive area close to the Springsure Supergroup Spring Complex. The proposed conditions require an aquatic values management plan specifically for this crossing.

For the LNG plant and associated marine facilities:

- conditions for the construction and operation of marine facilities and operation of shipping are incorporated into one set of conditions reflecting the fact that these activities are included in the one referred action. (In the case of QCG and Santos projects, separate referrals were made for the proposed LNG Plant, marine facilities, and, for QGC, shipping activities.
- minor changes have been made for the description of the terrestrial land offset to take into account the fact that the activities on the APLNG site includes a small reclamation area.

Legal considerations

Section 136 of the EPBC Act sets out a number of matters which you must or may take into account in making your decisions, and those matters are set out in or attached to this brief. Under s.139(2) of the Act, you must also consider relevant approved conservation advices for particular threatened species or ecological communities. As a number of conservation advices are relevant to more than one referral, those advices, as separately referenced in each departmental advice, are at Attachment P (on CD).

Economic and social matters – APLNG project

Under s.136(1)(b) of the EPBC Act, you must also consider economic and social matters relating to the proposed actions. The department considers that it is not practical to separate the economic matters relating to one referral from the referrals taken in total – the referrals are part of one related 'action' and cannot proceed independently of each other. Accordingly, information about the economic and social matters relevant to the proposed actions has been provided in relation to the actions taken together.

The Australia Pacific LNG Project is expected to have significant positive impacts on the local, regional, state and national economies, and the proponent has estimated a \$35 billion investment. The Coordinator-General's report states that the Project will rank as one of Australia's largest capital investments and generate significant economic benefits for Australia and in particular for Queensland. The project will require a workforce of approximately 4000-5000 people at the peak of construction and provide approximately 1000 permanent jobs during the operation phase. Economic benefits that could result from the project include:

- an annual increase of approximately \$1.3 billion in Gross Domestic Product per annum (when the project is fully operational);
- an annual increase of approximately \$2 billion to Queensland's Gross State Product;
- the creation of approximately 9,900 jobs (direct and indirect) and specifically 7,600 jobs direct and indirect) in Queensland during the construction phase.

For the gas fields, the project will require more than 1,600 workers on average per year during the peak construction period. For the LNG facility, a peak workforce of approximately 2,100 workers will be required during the construction phases, with at least 20% expected to reside locally. The operational phase of the LNG facility will require an expected workforce of 100 to operate one LNG train. Approximately 75 people will be required for each additional LNG train. (Requiring approximately 325 people for the full 4 train facility.)

Various economic and social matters relating to the construction and operational phases of the project are addressed in the Coordinator-General's assessment report. These include matters relating to traffic and transport; road infrastructure; workforce accommodation; demographics;

employment; housing and accommodation; community health and safety. Similarly to the matters identified in the assessment of the Santos and QGC proposals, there will likely be cumulative social economic impacts, including the following raised during public consultation on the APLNG project:

- changing demographic profile of the region;
- workforce accommodation (on Curtis Island and on the mainland in Gladstone);
- increased traffic (including marine)—disruption of social movement and visual impact;
- housing availability and housing affordability in the region and the impact this may have on low to moderate income earners;
- increased demands on community facilities and services;
- increased use of recreational facilities;
- social and community cumulative effects of multiple LNG projects being developed simultaneously, including impacts on local businesses;
- impacts on community values and lifestyle due to potential negative social impacts including quality of life—health impacts on the existing communities affected by the project, particularly cumulative;
- air quality levels in the Gladstone region.

The regulation of these matters is primarily the responsibility of State agencies and, consistent with that responsibility, the Coordinator-General imposed various conditions on APLNG to manage the impacts, including requirements for a social impact management plan (a draft of which was provided in the EIS and revised following consultation with stakeholders), and a community investment strategy.

Indirect impacts

Greenhouse Gas Emissions

You must consider indirect impacts as part of considering the relevant impacts of the proposals. The proposed conditions include mitigation measures and offsets relating to indirect (as well as direct) impacts. Indirect or consequential impacts include, for example, impacts on matters of NES from increases in greenhouse gas emissions. The project as a whole will generate significant greenhouse gases that can contribute to climate change which, in turn, may have impacts on matters of NES.

The Project will result in increases in the Queensland, Australian and global greenhouse gas (GHG) emissions. However, the proponent states in its EIS that the project will contribute to reducing global greenhouse gas intensity by producing LNG which can substitute for higher greenhouse gas intensive fuels. At full development, annual GHG emissions from the Australia Pacific LNG Project would equate to approximately 1.5% of Australia's GHG emissions (2007 as base) and 5% of Queensland's GHG emissions. However, if the Project's LNG output replaces higher greenhouse gas intensive fuels such as coal in power generation, this may avoid 35Mt CO₂-equivalent per year. This is approximately 6% of Australia's GHG emissions, based on 2007 emissions.

The major sources of GHG emissions associated with the gas fields are combusting CSG for compression and power generation (77%), and flaring during operations and scheduled maintenance (13%). The major sources of the LNG facility's GHG emissions are combusting CSG for compression and power generation (83%), venting (15%) and flaring (2%) during operations and scheduled maintenance. Around 2% of the project's GHG emissions come from vegetation clearing and decommissioning.

The proponent has proposed mitigation measures, including to the reduction of flaring during CSG production operations. The proponent also proposes the application of energy efficient design and appropriate management strategies monitoring and reporting as mitigation

measures.

The department considers that the conditions for a GHG reduction strategy that have been imposed by the Queensland Coordinator-General (condition 3 of Part 1, Appendix 1 of the Coordinator-General's Report) are adequate to address indirect impacts on matters of NES and accordingly, the Department does not recommend additional conditions be imposed for greenhouse gas emissions.

Increased human activity

Another example of indirect impacts on matters of NES is the result of increased pressures from human activity in the area of the gas fields. The proposed gasfields cover a large geographical area and construction and operation activities represent risks of increased fauna mortality through, for example road kill. The department notes that the proponent has in place standard operating procedures across existing gasfields for operational health and safety reasons, which will serve to limit speed and manage behaviour in tenements.

Shipping through the GBRWHA

The LNG carriers servicing the LNG facility will represent an increase of approximately 3 per cent in current shipping movements through the GBRMP for the first LNG train. This may increase to 13 per cent once the four LNG trains are operational. We expect that this increase in shipping will increase the risks of accidents in the WHA, as well as the risk of vessel strike to species which form part of the heritage values, as well as species listed under the EPBC Act (including the Dugong, Flatback turtle, Loggerhead and Green Turtle, Snubfin dolphin, and Indo-Pacific humpback dolphin).

Management of shipping risks is primarily addressed under existing regulatory arrangements. Shipping operations in the Great Barrier Reef and Torres Strait region are jointly managed by the Australian Maritime Safety Authority (AMSA), the Great Barrier Reef Marine Park Authority (GBRMPA) and Maritime Safety Queensland (MSQ). (Responsibility for AMSA is within the portfolio of The Minister for Infrastructure, Transport, Regional Development and Local Government, the Hon Anthony Albanese MP.) The conditions relating to the LNG plant also impose requirements for indirect offsets (contributions for the management of the World and National Heritage area). In this context, the Department considers that the increased indirect risks to matters of NES, from increased shipping associated with the project, is acceptable.

Other indirect impacts

The increases in population and activity, and associated increases in infrastructure, are likely to also have consequential impacts on matters of NES, - that is, impacts which arise from the consequential activity of third parties (i.e. those other than the proponent). Consequential demands for facilities will, of necessity, take up areas of land. Depending on the locations of the expanded or new activities, there is potential for the habitats of EPBC Act listed threatened species or communities, listed migratory species and/or other matters protected by the EPBC Act to be impacted by such developments. Waste flows and emissions to air and water from the new or expanded facilities may also have environmental impacts. There may also be indirect impacts from increased human activity (e.g. fishing) in the GBR.

Such increased impacts are however speculative and difficult to measure as attributable to the APLNG project itself. The proponents of any construction activity likely to have a significant impact on any matter protected by the EPBC Act will be required to comply with the requirements of the EPBC Act. Nonetheless some incidental incremental impacts from an increase in the utilisation of infrastructure, such as, for example, increased road kill of native fauna from increased traffic flow on existing roads, would not necessarily be matters addressed by the EPBC Act.

There are also likely to be increased incremental pressures on recreational facilities, including national parks, state forests and similar areas, through increased visitation rates. This in turn increases the likelihood of direct damage as well as adding to the risk of the introduction (accidentally or otherwise) of weeds, pests and feral animals, increasing pressures on species living in the habitats of these parks and reserves, in turn adding to management costs. This form of incremental increase in pressure would be unlikely to involve proposed actions in terms of the EPBC Act.

The expected impacts and increased management load caused by the likely increase in visitation rates to the Great Barrier Reef Marine Park and the (Queensland) Great Barrier Reef Coast Marine Park has been taken into account in the proposed package of offsets and mitigation measures required proposed conditions of approval for this and other elements of the project. This has also been taken into account in the context adding to the indirect impacts likely to be contributed by the Santos and QGC projects.

Post approval issues

To manage some of the uncertainties in the proposal, the conditions of approval require a number of significant matters to be addressed by the provision of further plans for the approval of you or your delegate, including e.g. threatened species management plans and environmental management plans. This approach avoids the need to set out every implementation detail for such a large project at the outset. This approach is used relatively often for large and complex approvals, and was used in conditions on your approvals of the Santos and QGC proposals, it does mean that, if you agree to the proposed approvals for the APLNG project, further complexities may arise in the process of later decisions to approve those plans.

Consultation with APLNG and Commonwealth Ministers

Before you decide whether or not to approve the proposed actions, you must inform APLNG (as the proponent) and invite comments within 10 business days. Under s.131 of the EPBC Act, you must also consult other relevant Commonwealth Ministers on your proposed decision and give them 10 business days to provide comments. Your final approval decision must then be made, taking into account all relevant information, including any comments received from those Ministers. In addition to the required consultation with the proponent, we believe it would be appropriate to consult with the following Ministers:

- The Deputy Prime Minister and Treasurer;
- The Minister for Regional Australia, Regional Development and Local Government;
- The Minister for Infrastructure and Transport;
- The Minister for Agriculture, Fisheries and Forestry;
- The Minister for Resources, Energy and Tourism;
- The Minister for Climate Change and Energy Efficiency.

We also consider it would be appropriate to inform the Queensland Minister for Natural Resources, Mines and Energy, the Hon Stirling Hinchcliffe MP, of your proposed decision. Letters for this purpose to APLNG, Commonwealth Ministers and the State Minister are at Attachments Q1 – Q8. The department (at executive and officer level) has consulted with and provided information to each of these portfolios. The majority of these ministers provided comments on your proposed decisions for the Santos and QGC projects, and we expect to receive similar comments in response to the recommended conditions for the APLNG project.

Publication of proposed decision

Under s.131A of the EPBC Act, before you decide whether or not to approve the taking of an action and what (if any) conditions to apply, you may also publish the proposed decision on the Internet and invite public comments within 10 business days. The department does not recommend that public comments be sought on the proposed decisions. The EIS has been already subject to public comment and a number of submissions were received.

Communications

When you have taken your proposed approval decision, the Department will prepare a comprehensive communications strategy for your final decision. This will include a draft media statement, questions and answers on the key issues and background information.

Recommendations:

- | | |
|--|-----------------------------|
| 1. Consider the information in this Appendix and in each of the attachments. | Considered / Please discuss |
| 2. Consider the advice on each of the components of the APLNG project at <u>Attachments C, D and E</u> . | Considered / Please discuss |
| 3. Consider the Coordinator-General's assessment report on the APLNG project at <u>Attachment I</u> . | Considered / Please discuss |
| 4. Consider the EIS at <u>Attachment J</u> and supplementary information at <u>Attachment K</u> . | Considered / Please discuss |
| 5. Agree that the recommended proposed approval instrument for gas field development (EPBC 2009/4974) at <u>Attachment F</u> accurately reflects your proposed decision on that proposed action. | Agreed / Not agreed |
| 6. Agree that the recommended proposed approval instrument for the gas transmission pipeline (EPBC 2009/4976) at <u>Attachment G</u> accurately reflects your proposed decision on that proposed action. | Agreed / Not agreed |
| 7. Agree that the recommended proposed approval for the LNG plant on Curtis Island (EPBC 2009/4777) at <u>Attachment H</u> accurately reflects your proposed decision on that proposed action. | Agreed / Not agreed |
| 8. Sign the letters at <u>Attachments Q1 – Q8</u> to consult the proponent and relevant ministers on your proposed decisions, and to inform the relevant State minister. | Signed / Not signed |

(from 31 January)
Mary Colreavy
Assistant Secretary
Environment Assessment Branch

s. 47F(1)

Email:

mary.colreavy@environment.gov.au

Secondary Contact
James Barker

s. 47F(1)

MINISTER
/ / 2011

ATTACHMENTS

Attachment A	Maps of the project area – (see also A0 Map included in briefing package)
Attachment A1	Map of the CSG fields
Attachment A2	Map of the CSG transmission pipeline route
Attachment A3	Map of the LNG facility and associated marine facilities at Curtis Island
Attachment B	Expert advice
Attachment B1	Advice from Geoscience Australia (September 2010)
Attachment B2	Study under s.255AA <i>Water Act 2007</i>
Attachment C	CSG field expansion – Department advice
Attachment C1	Email to DSEWPaC identifying existing APLNG Eastern QLD Operations (includes a map and a table) – 20 January 2010
Attachment C2	Controlling provisions table potential species impacted for 2008/4974
Attachment C3	Wetlands Section referral advice
Attachment C4	Australia Pacific LNG Saline Effluent Management Plan – Combabula (Q-4200-15-MP-0003,)
Attachment C5	DERM Regulated Dam Guideline, Manual for Assessing hazard Categories and Hydraulic Performance of Dams, and Model Environmental Authority Conditions (Schedule C – Dams) consultation drafts only
Attachment C6	Joint statement: Queensland Treasurer and Minister for Employment and Economic Development, the Hon Andrew Fraser and the Queensland Minister for Natural Resources, Mines and Energy and Minister for Trade, the Hon Stephen Robertson on Friday, January 07, 2011
Attachment C7	Letter from APLNG regarding proposed water discharge and potential impacts on Ramsar Wetlands
Attachment C8	Fauna Habitat Calculations for the Gas Fields (Q-LNG01-15-RP-0014), Received 26 November 2010
Attachment C9	Australia Pacific LNG Offsets Environmental Offsets Strategy – 16 November 2010
Attachment C10	Recovery Plan for ' <i>The community of native species dependent on natural discharge of groundwater from the GAB</i> '
Attachment C11	Map of EPBC GAB Springs and 100km boundary around APLNG project area
Attachment C12	DRAFT APLNG Project Gas Field Terrestrial Ecology Habitat Management Guidelines - 13 August 2010
Attachment C13	DERM Coal Seam Gas Water Management Policy
Attachment D	Pipeline – Department advice
Attachment D1	Controlling provisions table
Attachment D2	Clarification of impacts to cryptic Brigalow reptiles
Attachment D3	GLNG False Water Rat and Migratory Wader Study
Attachment D4	Draft EPBC Act Policy Statement 3.21 ' <i>Significant impact guidelines for 36 migratory shorebird species</i> '
Attachment E	LNG Plant and associated marine facilities – Department advice
Attachment E1	Controlling provisions table
Attachment E2	Queensland Regional Ecosystems Classification System
Attachment E3	Tables of GBR World Heritage values
Attachment E4	Policy and planning context of Curtis Island

Attachment E5	Great Barrier Reef Intergovernmental Agreement
Attachment F	Proposed decision instrument – Gas fields (not for signature)
Attachment G	Proposed decision instrument – Gas pipeline (not for signature)
Attachment H	Proposed decision instrument – LNG facility (not for signature)
Attachment I	Queensland Coordinator-General's report (November 2010) on APLNG project
Attachment J	Environmental Impact Statement
Attachment K	Supplementary Information to EIS
Attachment L	Public submissions and comment
Attachment L1	Table summary of public submissions and APLNG responses
Attachment L2	Public submissions on EIS
Attachment L3	Examples of recent media on coal seam gas projects
Attachment L4	Central Downs Irrigators Limited (CDI) report on groundwater
Attachment M	Legal advice on cumulative impacts
Attachment N	Other upcoming Gladstone LNG proposals
Attachment N1 and N2	Shell – Referral (N1 - gas pipeline; N2 - LNG plant)
Attachment N3	Arrow Energy – Referral
Attachment O	APLNG comment on Santos and QGC conditions
Attachment O1	APLNG comment on Santos and QGC conditions, 12 November 2010
Attachment O2	Department's response to APLNG comments of 12 November 2010
Attachment P	Conservation advices
Attachment Q	Letters for consultation with Ministers and the proponent
Attachment Q1	Letter to APLNG
Attachment Q2	Letter to Deputy Prime Minister and Treasurer
Attachment Q3	Letter to Minister for Regional Australia, Regional Development and Local Government
Attachment Q4	Letter to Minister for Infrastructure and Transport
Attachment Q5	Letter to Minister for Agriculture, Fisheries and Forestry
Attachment Q6	Letter to Minister for Resources, Energy and Tourism
Attachment Q7	Letter to Minister for Climate Change and Energy Efficiency
Attachment Q8	Letter to Queensland Minister for Infrastructure and Planning

**ADVICE IN RELATION TO THE POTENTIAL
IMPACTS OF COAL SEAM GAS EXTRACTION
IN THE SURAT AND BOWEN BASINS,
QUEENSLAND**

Phase One Final Report

for

**AUSTRALIAN GOVERNMENT
DEPARTMENT OF THE ENVIRONMENT,
WATER, HERITAGE AND THE ARTS**

provided by

Geoscience Australia and [s. 47F\(1\)](#)

Canberra

17 September 2010

Table of Contents

1. Background Information	10
1.1 Request for Services	10
1.2 This Report	12
2. Assessment and Advice	14
2.1 AUSTRALIA PACIFIC LNG (APLNG)	14
2.1.1 Project Summary	14
2.1.2 Summary of Assessment	16
2.1.3 Assessment of Proposed Development	20
2.2 QUEENSLAND GAS COMPANY (QGC)	38
2.2.1 Project Summary	38
2.2.2 Summary of Assessment	40
2.2.3 Assessment of Proposed Development	43
2.3 SANTOS	59
2.3.1 Project Summary	59
2.3.2 Summary of Assessment	61
2.3.3 Assessment of Proposed Development	64
2.4 COMMENT ON CUMULATIVE IMPACT ASSESSMENTS	82
2.5 Further Questions	85
2.6 Work Plan and Budget for Additional Work	86
3. Conclusions and Recommendations	88
3.1 Key Recommendations	88
3.2 Additional Recommendations	90
Appendix 1	96
Appendix 2	103

Executive Summary

Geoscience Australia (GA) and s. 47F(1) have been contracted by the Australian Government Department of Environment, Water, Heritage and the Arts (DEWHA) to provide expert advice in relation to the likely groundwater impacts of proposed and potential future Coal Seam Gas (CSG) extraction activities in the Surat and Bowen Basins, Queensland by Australia Pacific (APLNG), Queensland Gas Company/British Gas (Queensland Curtis LNG - QCLNG) and Santos Limited (Gladstone LNG - GLNG).

We have reviewed the content of the Environmental Impact Statements and supporting documentation put forward by the three proponents, along with subsequent additional data and information, supplemented by discussions with the proponents. Based on this information, we consider that, while the Environmental Impact Statements relating to proposed and potential future CSG extraction activities in the Surat and Bowen Basins, Queensland identify and assess a number of potential local scale (project area) groundwater related impacts, there are some matters that require further consideration under the *Environment, Protection and Biodiversity Conservation (EPBC) Act 1999*.

We recognise that a number of the shortfalls we have identified can be addressed through the provision of information and modelling developed by the proponents subsequent to the submission of the EIS, and through the collection of additional information and data in the context of an adaptive management approach. However, we consider that the overriding issue in CSG development is the uncertainty surrounding the potential cumulative, regional scale impacts of multiple developments. The information provided in the assessed EIS documents is not suitable for understanding the likely impacts of widespread CSG development across the Surat and Bowen Basins. This necessitates the development of a regional-scale, multilayer groundwater flow model that incorporates data from both private and public sector sources. We emphasise, however, that any modelled outcomes will be accompanied by high inherent uncertainties until sufficient CSG production data is available to calibrate the groundwater model.

The following summarises our assessment of the proposed projects according to the issues requested for specific evaluation. We emphasise that this assessment relates to the potential impacts of individual operations on the identified issues and does not consider the likely impacts of multiple CSG operations.

The adequacy of the proponents' hydrogeological models for estimating hydrogeological impacts on and within the Great Artesian Basin (GAB) and other affected surface and groundwater systems (this would include an initial assessment of the potential of one or more aquifers to depressurise and dewater and the likely impacts).

- Within the limitations of available data, the 'project-scale' models produced by all the proponents are suitable as a preliminary basis for estimating hydrogeological impacts on and within the GAB and other potentially affected surface and groundwater systems within the influence of the proposed operations. We have, however, noted a number of shortfalls in the modelling approaches taken by each proponent.
- The modelling results reported require further work to fully establish the uncertainties and sensitivity of the models to the large predicted drawdowns that will occur in the coal

measures, and hence does not provide a level of confidence in the model outputs and the conclusions drawn from them.

- APLNG's 'cumulative' model represents a useful preliminary assessment of potential regional hydrogeological impacts resulting from a range of groundwater extraction activities, and provides a good starting point for development of a regional model to underpin groundwater impact prediction and management.
- The project and regional scale models presented provide useful preliminary assessments of potential hydrogeological impacts resulting from a range of groundwater extraction activities. We understand that the proponents are in the process of developing new models or refining the existing models.

Potential impacts of groundwater extraction on aquifer interaction (e.g. water flow, cross contamination), vertical recharge, structural integrity and artesian pressure as a result of the CSG activities. This applies to both quantity and quality of groundwater.

Potential impacts of groundwater extraction on aquifer interaction have, in general, been adequately addressed with, while there is scope for further elaboration regarding some aspects. Based upon consideration of the hydrogeological, geological and project development information provided in individual proposals, we conclude that:

- The modelled vertical recharge and artesian pressure changes resulting from coal seam depressurisation are realistic and likely to result in groundwater flow into the coal measures from adjacent aquifers. We consider that these changes will be reversible over medium to long term timeframes (decades to centuries), depending on the specific aquifer and the management strategies applied.
- Cross-contamination is likely to be of little consequence as the majority of inter-aquifer transfer will involve the migration of higher quality water from adjacent underlying and overlying sandstone aquifers into coal measures.
- The structural integrity of aquifers in relation to groundwater transmission is unlikely to be significantly impacted by the proposed groundwater extraction. We note that groundwater extraction may cause some aquifer compaction that is likely to result in subsidence (as identified by the proponents and discussed below).

Potential impacts of groundwater extraction on the EPBC Act listed endangered ecological community 'The community of native species dependent on natural discharge of groundwater from the Great Artesian Basin.'

Based upon consideration of the hydrogeological, environmental and management information provided, we agree with APLNG and QGC that the risk of impact from groundwater extraction in individual operations to the EPBC Act listed endangered ecological community '*The community of native species dependent on natural discharge of groundwater from the Great Artesian Basin*' is low, based on the following:

- With one exception, documented and/or surveyed natural discharge sites (springs) are located outside the CSG fields and the modelled zones of groundwater drawdown.
- Proposed monitoring programs are likely to enable detection of potentially deleterious changes to groundwater level or quality.
- Proposed controls on the location and construction of infrastructure would avoid physical impacts on environments suitable for hosting EPBC Act listed communities.
- A small number of additional natural discharge sites proximal to the CSG fields may need to be investigated and assessed to determine their EPBC Act significance.

Based upon consideration of the hydrogeological, environmental and management information provided, we suggest that Santos consider further investigations to fully assess the risk of impact from groundwater extraction to the EPBC Act listed endangered ecological community '*The community of native species dependent on natural discharge of groundwater from the Great Artesian Basin*'. Our assessment is based on the following:

- A number of surveyed and unsurveyed natural groundwater discharge sites (springs) proximal to the Santos CSG fields require assessment to determine their EPBC Act significance.
- Proposed monitoring programs do not state how trigger levels will be acted upon with regards to mitigating changes to groundwater flow or quality in springs.

Potential for recharge into the GAB to be impacted in these areas due to CSG activities and the likely long-term impact(s).

- A reduction in pressure due to water extraction down-gradient of the GAB aquifer intake beds will not affect the rate of recharge.
- We consider that proposed infrastructure located within the intake beds of the GAB is unlikely to significantly reduce the amount of groundwater recharge.
- There is currently insufficient information to understand the relative significance of the proposed CSG activities in proportion to recharge to individual GAB aquifers. We consider that the total proposed annual extraction volumes may represent a moderate proportion of annual recharge to the GAB in the project areas, but that this represents a relatively small proportion of total recharge to the GAB. Detailed water balance modelling is required to quantify these relative volumes.
- We note that however, that while individual operations may not represent a significant potential impact to overall GAB recharge, if similar extraction volumes were to occur from a number of CSG developments, GAB recharge could be significantly impacted. In such a scenario, we consider that a reduction in recharge volumes basinward of the CSG

developments could result in reduced artesian pressures and potential impacts on EPBC Act significant spring communities further afield from the developments.

- We are unaware of any existing data or modelling results that would be suitable for assessing the likelihood or potential timeframes for such impacts, although groundwater movement rates in deeper GAB aquifers suggest that any impact (and recovery) would be extremely long term (i.e. occurring over many thousands of years or more).

Potential impacts of fracking on the structural integrity of aquifers and aquitards, and on existing groundwater flow processes.

Based upon the geological and technical information provided by the proponents with regards to the potential impacts of hydraulic fracturing ('fracking'), we consider that the potential risks posed by fracking are low. We conclude that:

- While the potential for fracking activities to impact on the structural integrity of aquifers and aquitards, and on existing groundwater flow processes, can never be completely eliminated, the competent application of industry standard technologies, techniques, and monitoring/mitigation measures proposed by each proponent are considered appropriate for minimising the risk.
- All proponents have adequately assessed any potential risks associated with fracking activities and have proposed appropriate monitoring and mitigation measures.

Initial advice on the likelihood and materiality of subsidence as the result of the proposals.

Based upon our assessment of the geological and geotechnical information provided, and relevant information from other sources, we agree with the proponents that there is a likelihood of subsidence, and that this could result in several centimetres of surface subsidence.

However, based on the estimated magnitude of the subsidence (in the order of centimetres to tens of centimetres), and with reference to subsidence assessments for CSG activities in similar geological environments elsewhere, we consider that the risk of impacts to surface water and shallow groundwater systems are very low.

We suggest that the monitoring measures currently proposed by the APLNG and Santos could be strengthened by assessing deformation at the land surface as well as in the aquifers and coal seams.

We suggest that the monitoring measures currently proposed by QGC, which assess both surface and sub-surface deformation are appropriate and could be value-added by linking into a regional program of monitoring lead by the relevant State Government agency.

Initial advice on the likelihood and materiality of any impact on MDB groundwater or connected surface water resources.

On the basis of the available information, we consider that there is a limited likelihood of impact on

MDB groundwater or connected surface water resources as a result of any of the proposed individual operations.

This assessment is based primarily on information suggesting that the only a small number of proposed CSG tenements are proximal to the Condamine River Valley and are located in an area where there is no known hydraulic connection between the Walloon Coal Measures (which will undergo depressurisation) and alluvial aquifers.

Initial advice on potential cumulative impacts on the issues above

While all proponents identify the issue of cumulative impacts of groundwater extraction activities in the region, only APLNG and Santos have attempted to quantify this.

We consider that these cumulative impact assessments are unavoidably inadequate due to the inability of individual proponents to access commercial-in-confidence data from a number of sources. We do not consider, however, that individual proponents are in a position to develop regional scale models that incorporate confidential drilling and production data from other sources.

We consider that the successful long-term monitoring and management of groundwater resources and groundwater-dependent EPBC communities dependent on natural discharge of groundwater from the GAB should be based on a comprehensive regional groundwater simulation model developed using all available data.

Recommendations

Although we consider that a number of the issues requested by DEWHA have not been fully addressed by the material within the EISs, we note that in many cases the necessary information relating to the impacts of individual operations has either been developed since the submission of the EISs, or can be acquired in the course of subsequent development under an explicit adaptive management strategy. We have noted that the current groundwater modelling is inadequate in terms of scale and detail to address the impacts of multiple CSG developments on groundwater interactions in the GAB and hence on EPBC listed discharge springs communities in the GAB. However, if the following recommendations are implemented, it should be possible to manage the potential groundwater impacts of proposed and potential future CSG extraction activities in the Surat and Bowen Basin, and minimise the risk of unintentional outcomes for the Great Artesian Basin.

We thus make the following key recommendations for a staged process of adaptive management of CSG development.

1. Management of uncertainty

Given the resulting levels of uncertainty in relation to cumulative impacts at the regional scale of a number of CSG developments, a precautionary approach should be taken in relation to approving proposed and potential CSG developments, recognising the fundamental principle that excessive rates of groundwater extraction will have impacts on groundwater and connected surface water systems, and groundwater dependent values such as EPBC listed discharge springs communities in

the GAB groundwater dependent ecosystems.

In the absence of sufficient evidence to characterise and quantify these potential impacts or to define excessive rates of extraction, we recommend that proposed and potential CSG development should be undertaken with an explicit requirement to minimise and mitigate any impacts during production.

2. Refinement of existing models as an initial basis for development

We have noted a number of shortfalls in the models presented in the EISs, but consider that overall these models provide useful preliminary assessments of potential hydrogeological impacts resulting from a range of groundwater extraction activities.

We recommend that the predictions of these models could serve as a preliminary basis for informing initial decisions about the approval of the CSG developments, pending a positive assessment of the validity and implications of the new models we understand have been developed by the proponents since the submission of the EISs.

3. Modelling regional scale impacts of cumulative CSG developments

We consider that the proponents have, for the most part, proposed appropriate mitigation measures to address the short term, local scale impacts of groundwater extraction on groundwater users. However, it is not clear that the measures proposed in the individual proponents' proposals will be adequate to fully address regional scale impacts on EPBC values or aquifer interactions.

We recommend that a regional-scale, multi-state and multi-layer model of the cumulative effects of multiple developments, and a regional-scale monitoring and mitigation approach will be developed to assess and manage these impacts. Such a model could be used to set the parameters for an adaptive management framework in which monitoring and mitigation strategies can be developed that will be applicable at both the project and regional scale. We consider that concerted Commonwealth and State action will be necessary to develop such a model as a high priority.

4. Management of long-term water balance impacts

We emphasise that any groundwater model, no matter how well-parameterised, calibrated and validated, is an interpretation of a groundwater system, and therefore subject to uncertainty. Given that there are shortfalls in the parameterisation and calibration of the models presented in the EISs, we consider that there are high levels of uncertainty in the accuracy of the predicted impacts of CSG development on groundwater behaviour and on EPBC listed ecological communities dependent on discharge from the GAB.

For this reason, **we recommend that measures to mitigate the potential impacts of proposed operations on water balances, such as the re-injection of treated associated water back into appropriate permeable formation(s) to re-establish pre-development pressure levels, be explored as an option and considered as a condition for approval of any development activities.** This needs to be undertaken in conjunction with appropriate measures to forecast and proactively manage any short term impacts, and should enable the reversal of any medium to long term changes in artesian groundwater pressures before they could impact on EPBC listed discharge communities. The design

of and volumes involved in these activities should be informed by a regional-scale groundwater model.

1. Background Information

1.1 Request for Services

Geoscience Australia (GA) and **s. 47F(1)** have been contracted by the Australian Government Department of Environment, Water, Heritage and the Arts (DEWHA) to provide expert advice in relation to the likely groundwater impacts of proposed and potential future Coal Seam Gas (CSG) extraction activities in the Surat and Bowen Basins, Queensland.

The scope of services detailed in the Project contract is specified as follows:

GA and **s. 47F(1)** will provide advice in relation to the likely impacts of proposed and potential future CSG extraction activities. Specific advice will be provided on the potential impacts of the proposed gas field activity on the Great Artesian Basin (GAB) as it relates to matters protected under the *Environment, Protection and Biodiversity Conservation Act 1999* (EPBC Act) and *Water Act 2007*. This includes:

- Potential impacts of groundwater extraction on the EPBC Act listed endangered ecological community 'The community of native species dependent on natural discharge of groundwater from the Great Artesian Basin';
- Potential impacts of groundwater extraction on aquifer interaction (e.g. water flow, cross contamination), vertical recharge, structural integrity and artesian pressure as a result of the CSG activities. This applies to both quantity and quality of groundwater;
- Potential impacts of fracking on the structural integrity of aquifers and aquitards, and on existing groundwater flow processes; and
- Potential for recharge into the GAB to be impacted in these areas due to CSG activities and the likely long-term impact(s).

GA and **s. 47F(1)** will also review specific information provided by project proponents regarding the likely impacts of their proposed activities on groundwater values including those detailed above.

The Services to be provided by GA and **s. 47F(1)** are described below:

1. Review the groundwater information and modelling of Australian Pacific LNG, Queensland Gas Company (British Gas) and Santos.
2. Provide a written assessment regarding:

- the extent to which risks of significant impacts to the GAB and other affected surface and groundwater systems are identified and assessed in the available documentation. Where any risks are not adequately identified and assessed, please provide initial advice on what further data or analysis is required and what steps would be needed to obtain the necessary data or analysis (including timeframes).
- the extent to which the measures and conditions proposed by the proponent and Queensland in relation to the GAB and other affected surface and groundwater systems can be regarded as adequately mitigating those risks. If your initial analysis suggests that risks will not be mitigated adequately, what other measures or requirements are potentially available to mitigate these risks and what further data or analysis is needed to reach a fully informed view?
- the adequacy of the proponents' hydro-geological models for estimating hydro-geological impacts on and within the GAB and other affected surface and groundwater systems (this would include an initial assessment of the potential of one or more aquifers to depressurise and dewater and the likely impacts);
- any further questions that should be put to the proponents or QDERM concerning hydrological or water quality impacts on groundwater and surface water systems as would affect matters of NES;
- initial advice on the likelihood and materiality of any impact on MDB groundwater or connected surface water resources;
- initial advice on the likelihood and materiality of subsidence as the result of the proposals;
- any questions that should be put to the proponents or QDERM concerning MDB system impacts.
- a work plan and budget for undertaking additional work to fill the critical information gaps, taking into account synergies with the Great Artesian Water Resources Assessment being conducted jointly by GA and CSIRO.

1.2 This Report

This report represents the final deliverable under Phase One of the Project “Provision of advice in relation to the potential impacts of coal seam gas extraction activities in the Surat and Bowen Basin, Queensland” in relation to potential impacts on *Environment, Protection and Biodiversity Conservation Act 1999* (EPBC Act) and *Water Act 2007* matters, and provides a detailed assessment and advice regarding the overall likely impacts of proposed CSG activities based on the review of material provided to GA and Dr M.A. Habermehl. This report also scopes further work required.

The advice contained herein has focused on reviewing the hydrogeological and groundwater-related management information in the Environmental Impact Statements (EIS) and related Appendices and Supplements put forward by the project proponents – Australia Pacific (APLNG), Queensland Gas Company (British Gas) - (Queensland Curtis LNG - QCLNG) and Santos (Santos Limited – Gladstone GLNG) relating to proposed CSG developments in the Surat and Bowen Basins, Queensland (Fig. 1.2-1).

The full range of documents referred to in the assessment is detailed in Appendix 2. The quantity and range of documents reviewed in order to provide the requested assessment is significantly greater than that initially specified in the Project Scope provided by DEWHA as additional EIS documentation needed to be examined and the three proponents provided significant further written material and responses to written questions and discussions at meetings during the review period.

In addition, GA and **s. 47F(1)** have completed this assessment in the knowledge that:

- The content of the documents reviewed may be up to 18 months old, and in many cases may have been superseded.
- Queensland Government (Qld DERM) and several of the proponents have proposed or initiated additional investigations and modelling; the timeframes for completion and delivery of these products are not compatible with the Phase One assessment process.

Additional and updated material has been almost continuously delivered to GA and **s. 22(1)(a)(ii)** **s. 47F(1)** by the proponents and DEWHA during the review process. In order to provide an assessment within the timeframes (17 September 2010) specified by DEWHA a cut-off date of 3 September 2010 has been imposed, although an additional meeting with the proponents and GA and **s. 47F(1)** was held on 10 September 2010, following an earlier meeting on 23 August 2010. This means that only documentation or data specifically requested after 3 September 2010 has been taken into account in the assessment presented here.