INITIAL RELEASE OF OFFSHORE AREAS FOR ASSESSMENT OF GREENHOUSE GAS STORAGE SITES

March 2009

Guidance notes for applicants

PURPOSE OF THESE GUIDANCE NOTES

With the passage through Parliament of the *Offshore Petroleum (Greenhouse Gas) Amendment Act 2008* in November 2008 the *Offshore Petroleum Act 2006* was renamed the *Offshore Petroleum and Greenhouse Gas Storage Act 2006.* This Act provides a legal framework for the injection and storage of greenhouse gases in geological formations under Australia's offshore waters.

The Act provides for a system of access and property rights for exploring for and using storage sites. The first step in the process of providing these access and property rights is by way of releasing acreage for exploration which can then be bid for by applicants. These guidance notes have been developed for the initial release of acreage for exploration for greenhouse gas storage sites (storage formations).

These notes set out information for applicants on what is required in bid applications, the bid closing dates, application lodgement details, the selection criteria that will be used in assessing applications, permit conditions and administration that apply once a permit has been granted, special notices outlining the rights and interests of other parties in the release areas and 'quicklook maps' of the release areas.

The Special Notices section will also serve as an ongoing reference for successful applicants for the release areas as they progress towards meeting work obligations.

These notes have been prepared by the Carbon Capture and Storage (CCS) Legislation Section, Low Emissions Coal and CO2 Storage Branch in the Australian Government Department of Resources, Energy and Tourism, in consultation with other Australian Government agencies and the resources departments in the States and the Northern Territory.

Contents

1. INTRODUCTION

This initial release of acreage for rights to assess potential greenhouse gas (GHG) storage in Australian waters under Commonwealth jurisdiction will operate under a work program bidding system. Before applying for an assessment permit, potential applicants should familiarise themselves with:

- the requirements for applications;
- bid assessment criteria; and
- permit conditions and administration.

These guidance notes set out in sections 2 to 4 the processes and requirements of assessment permit application and award.

The references to sections in the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* in these guidelines refer to the Act as renumbered. A copy of the Act can be found at: http://www.comlaw.gov.au/comlaw/Legislation/ActCompilation1.nsf/0/8AB738306D82197BCA2575690016EB3B?OpenDocument.

Regulations and guidelines setting out operational practices are still under development in consultation with stakeholders. As a result, the closing date for bids will not occur until at least two months after regulations are promulgated. For information on the development of the regulations, including copies of discussion papers, please use the e-mail address below.

Section 5 sets out special notices of titleholder obligations as they apply to the rights and interests of others in the areas released. This section is particularly important because it sets out the general expectations for liaison activity once a permit is granted, as well as highlighting any additional requirements/conditions for specific areas.

Appendix 1 provides maps of the areas being released for bidding, together with some basic information about the areas.

Appendix 2 provides information on Petroleum and Geoscience Datasets.

Any queries or comments on offshore GHG storage assessment in Australia can be e-mailed to: ccs@ret.gov.au.

1.1 Legislative background

Exploration for, and exploitation of, GHG storage sites in offshore waters is governed by the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (the Act).

The Act provides for orderly exploration for, and development of, GHG storage formations and sets out a basic framework of rights, entitlements and responsibilities for Government and industry.

The GHG storage legislation is included in the Act that applies to offshore petroleum activities and many provisions are essentially identical to those which have applied to petroleum activities over many decades. There are, however, some important differences as highlighted below.

The Act refers to ‘greenhouse gas substances’ and specifies that it applies only to carbon dioxide and prescribed greenhouse gases. It is not intended at this time to prescribe any other greenhouse gases and hence the term ‘greenhouse gas’ can be taken to be synonymous with ‘carbon dioxide’ for the purpose of these notes.

The GHG storage provisions of the Act are administered by the Commonwealth Minister responsible for Resources (the responsible Commonwealth Minister).

The Act has three main components in relation to GHG storage:

- provision of a system of access and property rights;
- managing interactions between the GHG storage industry, the petroleum industry, other users of the ocean and the environment; and
- ensuring safe and secure storage.

In relation to access and property rights, the Act provides for the grant of assessment permits on either a work program bid or cash bid basis. This release relates only to work program bidding and hence cash bids are not further discussed.

The Act provides for the issue of invitations to apply for assessment permits (acreage release), followed by assessment of bids against publicly available criteria and then issue of permits to successful applicants. Conditions of the title will also be determined at this time.

Assessment permits have a term of six years, with one possible extension of three years. Conditions relating to such extension are set out in the Act.

An assessment permit provides the title holder with the right to explore for GHG storage formations and, if successful, the exclusive right to convert this to an injection licence. The Act also provides for holding leases in the event that a storage formation is proven (declared) but injection cannot start within 5 years, but a GHG stream is expected to become available within 15 years. Other types of access rights are also provided for certain types of activities outside of title areas.

A central concept of the Act relates to storage formations. A potential storage formation fulfils simple criteria such as effective sealing mechanisms and possible migration pathways that could be suitable for GHG storage. However, detailed evaluation involving what are termed ‘fundamental suitability determinants’ (which include such factors as the amount of GHG substance to be stored, injection rates and sites, and the effective sealing mechanism) have to be determined before the formation can be considered to be an eligible storage formation.

Once a title holder is satisfied that they have discovered an eligible storage formation, they apply to the responsible Commonwealth Minister to declare the storage formation as an identified storage formation. A declared storage formation allows the permittee to apply for a GHG holding lease or injection licence over the declared storage formation.

The fundamental suitability determinants and geological factors together determine the spatial extent of a storage formation and hence of a future holding lease or injection licence. This area consists of the blocks covering the spatial extent that the GHG substance is expected to occupy during the life of an injection licence.

Potential subsurface migration pathways could be extensive and a GHG substance may continue to migrate in subsurface areas for many years after injection has ceased. Work programs proposed in applications may include field work outside of the permit area where this is aimed at identifying possible risks of leakage or other adverse impacts that may arise in the long term. This may require expenditure and work to be undertaken outside the title area, in which case it will be the applicant's responsibility to seek the appropriate access permission.

1.2 Interactions with petroleum activities

Activities under a title have the potential to impact adversely on petroleum operations. Provisions of the Act are also designed to protect existing petroleum title holders' rights. The provisions require a GHG title holder to demonstrate to the satisfaction of the responsible Commonwealth Minister that their activities will not pose a 'significant risk of a significant adverse impact' on petroleum operations under a title that was in existence on 21 November 2008 (the date at which the GHG provisions of the Act came into force). These pre-commencement petroleum titles also include future titles in the same series (for example a retention lease or production licence derived from a pre-commencement exploration permit). Details of how the 'significant risk of a significant adverse impact' test will be applied will be contained in regulations that will be promulgated before the bids on the areas subject to this release close.

1.3 Key differences from petroleum acreage bidding process

Petroleum exploration requires identification of drilling targets (which can be quite small in area), while GHG storage assessment is more likely to be concerned with larger area features (seals and aquifers), optimisation of the use of the potential storage resource, and the identification of factors which may pose risks to the long term safe and secure storage of the GHG substance. The path of GHG storage assessment may therefore be different from petroleum exploration. Thus, for example, it may be effectively impossible to define a suitable secondary work program for a GHG storage assessment program, even in general terms, until the initial phase has been completed. The concept of secondary work programs, therefore, is not used in the same way as for petroleum. In another case, the early identification of a key factor may mean that there is no purpose in further assessment of a particular area. Surrender conditions are therefore more flexible than those for petroleum.

Storage formations will commonly be much larger than petroleum accumulations and may often cover a large proportion of an assessment permit area. This factor is taken into account in the Act, which does not require the relinquishment of part of a GHG assessment permit acreage, unlike petroleum.

These key differences, and especially the potentially large spatial extent of storage formations, also highlight the importance of taking 'basin management', both over the short and long terms, into account in GHG storage activities. Basin management includes considerations such as basin-wide reservoir pressure regimes, and possible impacts on petroleum and ground water resources.

A further difference arises from the fact that GHG storage is a new activity, but that a very large body of relevant data already exists as a result of petroleum activity. Hence it may be that in some areas only limited acquisition of new data through new seismic or new wells is required to allow a GHG permittee to apply for a declared storage formation.

1.4 Special note for petroleum title holders

The Act provides certain rights for petroleum title holders to undertake GHG storage activities and to apply for GHG titles. In particular:

- the regulations will provide petroleum title (exploration, retention or production) holders with the right to explore, subject to certain conditions, for GHG storage formations in their petroleum title area without obtaining a GHG Assessment Permit. However this right does not provide them an exclusive right to apply for a GHG title, other than as set out below;

- retention lease and production licence holders have the right to apply for a GHG title over their lease or licence areas.

More details are included in the Act.

2. APPLICATIONS FOR AN ASSESSMENT PERMIT

2.1 Application details

Applications for areas in this initial release are invited under the work program bidding system in accordance with section 296 of the Act. Two copies of the application must be submitted.

2.2 Application content

In general, work programs should be aimed at obtaining sufficient information to enable application for the declaration of a storage formation (section 312). Such a declaration is required before an application can be made for a holding lease or injection licence.

Applications **must** contain all of the following:

2.2.1 *Technical Assessment*

The applicant's technical assessment of the GHG storage potential of the area should include the concepts underlying its proposed work program, with sufficient detail to support that program. A sound technical assessment would include an assessment of relevant data and justify the amount of seismic surveying, wells and other exploration activities proposed.

2.2.2 *Particulars of the applicant*

Particulars to be provided must include:

- The technical qualifications of the applicant and of its key employees.
- The technical advice available to the applicant.
- The financial resources available to the applicant, including evidence of the applicant's ability to fund the work program proposed, a statement of other GHG assessment commitments over the next 6 years and a copy of the latest annual and quarterly reports for each applicant.
- Where relevant, evidence of the viability of the consortium lodging the application, including evidence that a satisfactory settlement has been, or can be, reached on the Joint Operating Agreement (a copy of a signed Heads of Agreement will generally suffice).
- The percentage participating interest of each party to the application.
- Details of any relationship that a director of an applicant company had with any company that has defaulted (including in relation to petroleum titles) over the previous five years.

Given that this constitutes the initial release of acreage for GHG assessment, the applicant should also provide details of any petroleum permit cancellations or defaults on work program conditions under the Act of any of the applicant companies over the previous five years, and why the applicant believes the prior failure is irrelevant to the current application, for example, participation in the 'good standing' scheme outlined in section 4.

2.2.3 *Minimum guaranteed work program*

The work program contained in the bid will constitute the minimum guaranteed work program. This proposal (including indicative minimum expenditure) should include exploration wells to be drilled, seismic and other surveying activities (specifying the surveying technique), data evaluation and other work, for each of the six years of the permit term.

In a few cases, where a large amount of open file data already exists, detailed analysis may form a major part of the work program.

Work programs may include components relating to work undertaken outside the permit area, provided that such work is directly relevant to storage formations in the permit area. These include:

- analysis of data, including analysis of long term migration, basin management issues and potential impacts on petroleum operations all of which may relate to areas outside the permit area;
- issues relating to long term safe and secure storage (for example, investigation of a possible leakage point which could pose a risk after long term migration of the injected substance);
- collection of data to support the monitoring of a potential future storage project that might be undertaken in the permit area.

Should activities outside of the title area be proposed, then the applicant will have to seek the appropriate access authorities separately. The applicant should also clearly identify the split between activities to be undertaken in the permit area and those external to the permit.

Applicants should note it is mandatory that the minimum work program proposed in each year of the term of the assessment permit is stated precisely (including quanta of work) to avoid any ambiguity. Proposals for work programs that cannot be guaranteed to be undertaken within the permit term must not be included.

The successful applicant may seek approval for variations in the work program from those specified in the work program bid. However, such variations will only be approved if they can be justified on the basis of knowledge gained as a result of work already undertaken and if the proposed new work program is of an equivalent or superior technique.

2.2.4 *Other information*

The application should include such other information as the applicant wishes to be taken into account in consideration of the application.

Applicants are asked to clearly state in their work program bid whether acquisition of seismic survey data relates to purchase/licensing of existing seismic data, or whether a new seismic survey will be undertaken as part of the work program.

2.3 Closing dates

Applications must be lodged by 4.00 pm on the later of the:

> Six calendar months after the release of the acreage or 2 calendar months after the regulations under the Act have been promulgated.

Potential applicants should monitor Department of Resources, Energy and Tourism Website (http://www.ret.gov.au/resources/carbon_dioxide_capture_and_geological_storage/carbon_capture_and_storage_acreage_release/Pages/ccs_acreage.aspx) and/or maintain contact with Departmental officers for information on the progress with the development of regulations (ccs@ret.gov.au) for further information.

2.4 Lodgement of applications

Applications, together with the work program and supporting data, should be submitted in duplicate to the Department of Resources, Energy and Tourism at the address listed below:

> General Manager
> Low Emissions Coal and CO2 Storage Branch
> Department of Resources, Energy and Tourism
> GPO Box 1564
> Canberra ACT 2601

The following special instructions should be observed:

- two copies of the application and supporting data (supporting data may be submitted electronically);
- the application should then be sealed and clearly marked as "Application for Area ..... Commercial-in-Confidence"; and
- this envelope or package should then be enclosed in a plain covering envelope or package and delivered by hand or posted to the address above. It is the responsibility of the applicant to confirm receipt.

2.5 Fees

Each application must be accompanied by a fee payable to the "Commonwealth of Australia" through an Australian bank or bank cheque (electronic funds transfer or credit card facilities are not available). The amount of the fee is prescribed in Regulations under the Act, (Section 427). Fees will be set by regulation, which will be promulgated at least two months before bids close.

2.6 Renewal of permits

Permits can be renewed for a further three years after the initial six year term, subject to the responsible Commonwealth Minister being satisfied that there are sufficient grounds for granting the extension. Permit holders wishing to renew their permits must submit their applications between 6 and 12 months before the permit expires (Section 308 of the Act).

3. CRITERIA FOR ASSESSMENT OF APPLICATIONS

This section sets out the criteria that will be used in assessing applications made under Section 299 of the Act for the award of assessment permits.

In applications for the award of assessment permits, companies will be expected to take into account all relevant information and any special conditions (such as environment protection, defence and fisheries matters) applying in permit areas. Relevant information, access restrictions and details of special conditions known to government at the time of release are included in section 5.

An applicant must first satisfy the responsible Commonwealth Minister of its capacity to undertake its proposed work program, in particular:

- the adequacy of financial resources and technical expertise available to the applicant;
- the likelihood that the applicant will continue to have access to sufficient resources to meet the requirements of the proposed work program as well as other commitments previously entered into in other permit areas;
- the future viability of any applicant, including evidence that a satisfactory Joint Operating Agreement has been or can be reached; and
- the applicant's past performance in petroleum exploration areas or GHG assessment areas in Australia or, if relevant, elsewhere.

3.1 Assessment criteria

Work programs proposed in bids must significantly advance the GHG assessment status of the permit area, and, in general, should be aimed at obtaining sufficient information to demonstrate the existence, or otherwise, of an eligible storage formation.

The basic objective in awarding an assessment permit is to select the work program bid most likely to achieve the fullest assessment of the GHG storage potential within the permit area. Bids will be assessed taking account of the criteria listed below:

- the number and timing of wells to be drilled, provided there is an adequate supporting program of geological and geophysical work;
- the amount, type and timing of seismic surveying to be carried out;
- other new surveying, data acquisition, sampling, monitoring and reprocessing to be carried out;
- the amount, type and timing of any purchasing or licensing of existing data (see section 3.2 below);
- analysis and studies relating to potential migration paths for injected GHG substances;
- analysis and studies relating to potential impacts on petroleum operations;
- the extent to which the applicant's technical assessment supports the work program proposed in the application.

The extent to which the proposed work program takes account of existing or potential petroleum operations by a pre-commencement petroleum title holder may also be taken into account.

Preference will be given to bids from applicants who can demonstrate the availability of a GHG stream for injection. A decision on whether or not an applicant has an available stream of greenhouse gas for injection will take into account a number of factors and especially:

- in the case of GHG associated with petroleum, whether a petroleum retention lease or production licence has been awarded over the field which is to be the source of the GHG substance;

- in the case of GHG from other sources, whether substantial investment has been committed to feasibility and design processes for the capture of the GHG substance.

Other factors that will be considered include:

- whether sources involve production licences, retention leases or declarations of locations of petroleum discoveries;
- the level of financial commitment to the development of the associated capture plant;
- the maturity or stage to which the overall project has advanced (for example, to Front End Engineering and Design study, or a final investment decision);
- the nature of any agreements between the applicant and capture facility(ies), where relevant;
- the expected timeframe in which a GHG stream is expected to become available for injection;
- the public interest, including taking into account such factors as the best use of the total available storage capacity of the area and the amount of GHG proposed to be stored.

If an applicant satisfies the responsible Commonwealth Minister that it has an available stream of GHG for injection, then the applicant will also have to satisfy the responsible Commonwealth Minister that the work program is expected to be sufficient to provide the information that would be required to lead to the declaration of a storage formation in the permit area. Provided that this criterion is met, then the application will be preferred over other applications that do not have a readily available stream of GHG for injection.

3.2 Purchase of existing data

Pre-purchase of existing non-exclusive data cannot form part of the work program (but any interpretation of that data included in the technical assessment will be taken into account in assessing the relative merits of the work program proposed). Such data proposed to be purchased after the award of a permit may form part of the work program, provided that this does not disadvantage a competitor who purchased the data prior to bidding. Thus, provided that a work program commits to the purchase of such data, this will not advantage or disadvantage the bid from that of another bidder who has already purchased the data.

Proposals to purchase data from a petroleum exploration activity relevant to the GHG permit area can be included in a bid, provided that this does not disadvantage a competitor who purchased the data prior to bidding. In this case, bidders are advised to ensure that the necessary commercial arrangements are in place before bids are lodged to ensure that minimum guaranteed work commitments can be met.

3.3 Petroleum exploration activities

GHG assessment permit areas may overlie petroleum exploration permits and petroleum exploration activities may generate information relevant to GHG assessment.

In some cases, the bidder for a GHG assessment permit may have an interest in the petroleum title involved. In this case the work being undertaken under a petroleum work program can be included in the GHG work program bid, provided that the work is expected to generate significant new knowledge relevant to GHG assessment of the GHG permit area.

3.4 Process for assessing applications

Applications are expected to be submitted in accordance with Section 1 above. An application will be assessed against the selection criteria by the responsible Commonwealth Minister. Technical experts will prepare a report for the Minister containing recommendations as to the winning bid.

If areas are offered for both GHG and petroleum work program bidding in a similar timeframe, then assessment of these applications will be independent.

Applications will be assessed on the basis of the information contained in the written applications together with any additional information requested by the responsible Commonwealth Minister, which should also be submitted in writing. Applicants may be invited to attend an interview with an assessment panel and information provided during that interview will also be taken into account.

It should be noted that the composition and timing of the work program proposed in the original application, as part of the competitive bidding process, cannot be supplemented, expanded or amended through clarification or through the interview process.

In the event that a winning applicant cannot be chosen on the basis of the information contained in the written application and provided during interview, the two or more parties that the responsible Commonwealth Minister considers as equally deserving of the grant of the permit may be invited to submit supplementary written bids as a basis for the selection of a successful applicant.

3.5 Consideration of past performance

As indicated above, the responsible Commonwealth Minister may take into consideration, amongst other things, the applicant's past performance in petroleum permits or GHG storage exploration areas in Australia or, if relevant, elsewhere. This may occur even when the applicant's proposed work program is the highest ranking bid submitted.

This would particularly apply in the situation where one or more of the applicants were participants in petroleum permits that had been cancelled because of default in meeting work program commitments and where there was no agreement to maintain good standing. Further information on good standing arrangements can be found in section 4.3 below.

Although any cancellation would be taken into account and the circumstances of the default would be relevant, consideration would generally be given to cancellations occurring in the previous five years.

In the event of consideration being given to prior cancellation, and where this would be a significant factor in the decision to offer a permit, the applicant would be given the opportunity to establish that the earlier failure was irrelevant to the current situation and that default would not occur in the current application.

A record is maintained of permittees that have defaulted on petroleum work program commitments and have not taken advantage of the good standing arrangements.

3.6 Refusal to grant a permit

Applicants should note that the Act (section 310) provides that the responsible Commonwealth Minister may refuse to grant a permit to an applicant. While the Act does not specify the grounds for refusing to grant a permit, they may include:

- the work program proposed is inferior to that of a competing bid;
- the work program bid is inadequate to significantly advance the GHG storage assessment status of the area;
- the work program bid is not supported by a sound technical assessment;
- the responsible Commonwealth Minister is not satisfied that the applicant possesses the financial or technical capacity to complete the work program bid; or
- the responsible Commonwealth Minister is not satisfied that, on the basis of past performance, the applicant will comply with permit conditions.

3.7 Acceptable work program bids

An assessment permit will not be offered to an applicant unless the applicant can satisfy the responsible Commonwealth Minister of its capacity to undertake its proposed minimum guaranteed work program and that program is considered likely to significantly progress the assessment of the GHG storage potential of the permit area.

The bid must be credible, coherent and supportable. The early elements of the program should be sufficient to enable the later elements to proceed.

Acceptable bids for an area will vary depending on the size of the area and its perceived prospectivity for storage sites and the amount of relevant data available. Generally, it would be expected that the minimum guaranteed work program would include at least a significant amount of new seismic surveying and/or wells and that at least one well would normally be expected to be proposed within the six years of the permit term. However:

- Where extensive, non exclusive seismic data or significant recently reprocessed seismic data (normally from field tapes) are available over an area, it would generally be expected that the minimum guaranteed work program would include at least the licensing of a significant amount of the data followed by a well or wells.

- Where the area is fully covered by 3D seismic data, substantial reprocessing of the data may form a substantial part of proposed work commitments. The reprocessing would normally be expected to be from field tapes.

Unless sufficient technical information already exists to allow the identification of a storage formation, there must be sufficient phased seismic to enable a prospective storage formation to be identified somewhere in the permit area.

Where relevant, studies to determine potential migration path(s) for the injected GHG substance and potential impacts on petroleum activities or other resources must be included.

In areas which have been the subject of significant petroleum exploration activity, including the drilling of wells, requirements for acceptable work programs may be less stringent.

The above guidance on acceptable bids will also be applied by the responsible Commonwealth Minister when considering applications for the three year renewal term for permits.

4. PERMIT CONDITIONS AND ADMINISTRATION

The conditions applying to a permit granted under sections 298 (original term) or 309 (renewal term) of the Act, and the continuing administration of those conditions, will be as follows:

- The permittee will be required to undertake each component of the minimum guaranteed work program in the designated year or earlier and failure to do so may result in cancellation of the permit.

- The minimum guaranteed work program can only be reduced once the permit has been awarded in very specific circumstances associated with surrender of part or all of the permit area (see under surrender in section 4.1 below). Assessment activity in excess of the minimum guaranteed work program is permitted.

- If a permit holder fails to complete the full work program over the life of the permit, or all work scheduled up until an application is made to surrender part or all of the permit area, the permit holder will not have complied with the conditions of the permit.

- Permittees may at any time make application for a variation or suspension of permit conditions (e.g. work program commitments) on the grounds of *force majeure*. If granted, a suspension has the effect of putting back the end date of the current permit year- it does not affect the ability of the permittee to undertake work activities during the suspension period. *Force majeure* refers to an event or effect that cannot be reasonably anticipated or controlled via experience or care. Commercial circumstances that are common risks in the industry would not normally be considered as a basis for an application on *force majeure* grounds. Factors such as avoidable delays in contracting a rig or vessel or poor quality seismic data would not normally be considered as *force majeure*. Such factors may influence the perceived commercial viability of an activity, but should not prevent the explorer from adhering to its bid commitment.

- When a variation or suspension of permit conditions has been granted for reasons of *force majeure*, the permittee must report at least every three months.

- When applying for a suspension of permit conditions, permittees may also apply for an extension of the permit term. An extension has the effect of putting back the end date of each permit year remaining in the current permit term (section 437 of the Act).

- Where a permittee has been unable to obtain sufficient information to determine a potential site to meet a drilling commitment, the permittee may apply for a variation and suspension of permit conditions to commit to sufficient new seismic surveying (additional to the current work program) to allow that drilling commitment to be met. Only where a permittee has demonstrated a significant attempt to meet its work program commitments would a suspension be considered and then only for a maximum of 12 months.

- Permittees may seek at any time to have an alternative work activity credited as meeting a work program commitment. Whether an alternative work activity meets a work program commitment will be considered on a case-by-case basis, with the criteria

for approval being to ensure that the alternative work activity is a similar, or superior, technique and meets or exceeds the objective of the original work commitment.

- Non-exclusive seismic data purchased by a permittee may be counted against a pre-existing work program commitment to the extent that the survey met in part, or in full, the original work program commitment and was recorded after the date on which the permit was granted/renewed.

- Permittees will be required to comply with the provisions of the Act, the Regulations and Directions issued under the Act, and with any special conditions associated with the permit area.

4.1 Permit surrender

Once a permit holder applies to the responsible Commonwealth Minister for consent to surrender the permit, the responsible Commonwealth Minister will consider the application in the context of the requirements of section 442 of the Act before giving or refusing consent to surrender the permit. The responsible Commonwealth Minister's consent to surrender will be conditional on the surrender taking effect in the permit year in which the consent is given. Otherwise additional fee payments and work program commitments will be incurred.

In considering whether the permit holder has complied with the conditions to which the permit is subject and the provisions of Part 3.10 of the Act and of the Regulations, account will be taken of all relevant requirements, particularly:

- the status of the permit (including fees and monies due) and whether all due work program commitments have been completed;
- the reporting requirements contained in the Directions given to the permit holder and whether all reports and data have been lodged (for example, reports on specified activities, annual reports); and
- the action taken by the permit holder to ensure that the permit area is clear of all debris resulting from operations and that all wells have been plugged or closed.

Surrender of the permit, or part of the permit, in good standing may be agreed prior to the sixth permit year if the work program up to that time has been completed and:

- the responsible Commonwealth Minister is satisfied that the work undertaken up until an application is made to suspend the work program pending surrender of the permit is sufficient to demonstrate that the entire permit area is unlikely to contain a commercial scale storage formation and the Minister agrees to the surrender of the entire permit area; or

- if the permittee has been granted a holding lease or injection licence over one or more storage formations in the permit area, then the permittee can apply to surrender the remaining parts of permit.

To facilitate consideration of applications for consent to surrender, it is expected that permit holders will ensure that the permit is in good standing (that is, has fully complied with the conditions of the permit) and that any outstanding reports and data are lodged with the application.

4.2 Permit cancellation

Permit holders are expected to maintain permits in good standing and ensure that all obligations under the Act, directions and permit conditions, including any special conditions associated with the permit area, are met within the due time frame. Failure to undertake each component of the minimum guaranteed work program in the designated year or earlier may result in cancellation of the permit.

Where the responsible Commonwealth Minister believes cancellation of the permit is the appropriate course of action, the permit holder will be served notice of intention to cancel the permit in accordance with Part 3.11 of the Act.

Generally, permit holders will be given five weeks within which to submit matters they wish to be considered and taken into account by the responsible Commonwealth Minister in reaching a final decision on permit cancellation.

Arrangements are available for companies that have a permit cancelled to maintain good standing (refer to 'Arrangements to Maintain Good Standing' in section 4.3 below).

4.3 Arrangements to maintain good standing

A permit holder that is in default of its work program conditions in a GHG assessment permit but wants to maintain its good standing can have access to the following arrangements provided it satisfies the responsible Commonwealth Minister that it has made a significant attempt to assess the GHG storage potential of the permit area. The responsible Commonwealth Minister may also refer to whether the defaulting permit holder has completed work in excess of the second highest bid for the permit area.

Where a work program condition has not been complied with, the permit is in default and would normally be cancelled. However, the permittee(s) can maintain 'good standing' by:

- undertaking to spend an amount equal to the agreed monetary value of the outstanding work commitments on qualifying additional work in permits over alternative acreage (see below). In the case of joint ventures, the net value of the commitments will be divided on the basis of each party's equity in the title. The defaulting permit holder must agree in writing to maintain its good standing and must make a public statement about its undertaking at the time of cancellation or determination of their permit, or at such time as may be agreed with the responsible Commonwealth Minister. A permit holder will be deemed to be in good standing once such an agreement is reached, until such time as it fails to progress with its undertakings. However, if after entering into such an agreement, the permit holder does not progress with its undertakings within the agreed timeframe, then it will be considered to be not in good standing and any future bids will be assessed against its default and lack of good standing.

- satisfying the responsible Commonwealth Minister that the work undertaken is sufficient to demonstrate that the area is unlikely to contain a commercial scale storage formation.

A permit holder seeking to maintain its good standing must also provide to the responsible Commonwealth Minister all documentary and derivative information relating to the cancelled permit, and ensure all former titleholders agree to the data becoming immediately "open file".

A defaulting permit holder seeking to maintain 'good standing' will be able to bid for any areas released in the future, and, if successful, will be offered a permit. A defaulting permittee would have to obtain permits with sufficient qualifying work to commit all the offsetting expenditures in alternative areas.

To maintain 'good standing', a defaulting permit holder will be required to spend its share of the full amount of the agreed value of any outstanding commitments on the acquisition and interpretation of new geophysical and geochemical data and/or drilling activities within a period of five years. Actual expenditures on qualifying work are offset against the good standing obligation.

Expenditure on permit administration, studies not otherwise referred to in this guideline and activities in permits obtained from the normal acreage releases cannot count towards a good standing commitment.

Any outstanding commitment remaining after three years (and this would be expected to be only a very small proportion of the total commitment) would have to be spent on studies of the offshore Australian region for the benefit of the wider GHG storage industry. The timeframe and nature of the studies would be determined in consultation with the responsible Commonwealth Minister and industry.

The responsible Commonwealth Minister and the defaulting permit holders will agree on the monetary value of the outstanding work commitments. Independent expert advice will be sought where there is dispute about the agreed value. The defaulting permittees will be liable for the cost of obtaining such advice. Permit holders may be required to provide audited accounts demonstrating that the required expenditure commitments have been met.

A defaulting permit holder that maintains 'good standing' through these arrangements will not have its past performance in the cancelled or determined permit taken into account in the consideration of future applications for vacant acreage.

4.4 Insurance

Under section 571 of the Act, successful applicants may be required to maintain adequate insurance against expenses or liabilities in relation to activities pursuant to the assessment permit, including the expenses of complying with directions with relating to the clean-up or other remediation of the effects of the escape of a GHG substance.

5. SPECIAL NOTICES CONCERNING TITLEHOLDER OBLIGATIONS AND THE RIGHTS AND INTERESTS OF OTHERS

5.1 Overview

The Act requires that offshore GHG operations be carried out in a manner that does not unduly interfere with other rights and interests. There is also a need to comply with other requirements and standards set by Australian law. All titleholders need to have due regard for matters such as:

- Environment and heritage protection;
- Navigation and maritime safety;
- Fishing activities;
- Defence activities;
- Submarine telecommunication cables; and
- Native title rights and interests.

The Act also includes a system to protect the rights of existing petroleum title holders and to manage interactions with the petroleum industry into the future. Prospective bidders should familiarise themselves with relevant parts of the Act.

In addition to the general advice and requirements that apply to all release areas, there are also notices giving recommendations and requirements for specific areas (see section 5.3 below). The attention of potential applicants is drawn to all the issues set out below, as they have been raised in consultations with others who have rights and interests in these marine areas. The requirements for specific areas may result in conditions being included in an assessment title document.

5.2 Notices for all areas

5.2.1 *Environment protection*

Of particular importance to GHG storage proposals are the requirements of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), the *Environment Protection (Sea Dumping) Act 1981* (Sea Dumping Act), and the *Offshore Petroleum and Greenhouse Gas Storage Act 2006*. Under these Acts, the main environmental approvals that may be required for GHG exploration and operational activities are:

- An Environment Plan under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006.*

- Under Chapter 4 of the EPBC Act to undertake an activity that may potentially impact on a matter of National Environmental Significance (NES). The most important matters of NES to offshore areas are the Commonwealth marine areas, World Heritage areas, National Heritage areas, wetlands of international importance, threatened species and migratory species.

- Under Chapter 5, Division 3 of the EPBC Act to undertake activities that may interfere with cetaceans (e.g. whales). This is only required at locations and times that cetaceans are likely to be present.

- Under Chapter 5, Division 4, of the EPBC Act to carry out activities in a Commonwealth Marine Reserve.

- Under the Sea Dumping Act for GHG a permit may be required for operational activities, that is, undertaking carbon stream injection in the marine environment.

Penalties may apply to any activities in breach of the EPBC Act and the Sea Dumping Act. Further information on these approvals is provided below.

Information on the EPBC Act is available at: http://www.environment.gov.au/epbc. The site also has information on previous referrals and decisions under the EPBC Act that may be of assistance in deciding whether to refer an intended action: http://www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl.

Information on the Sea Dumping Act is available at: http://www.environment.gov.au/coasts/pollution/dumping/index.html.

Please note that where *approval* is required under both the EPBC Act and the Sea Dumping Act, the Department of the Environment, Water, Heritage and the Arts (DEWHA) seeks to align the processes so only one *assessment* is required. Early discussions with the Department regarding these processes are recommended.

National Environmental Significance (NES) and the EPBC Act

Under the EPBC Act, companies proposing to undertake GHG exploration or development activities, or 'actions', must consider whether those actions will have or are likely to have a significant impact on a matter of NES. The EPBC Act places the onus on the responsible party to ensure an activity either does not significantly impact a matter of NES, or is approved by the Australian Government Environment Minister before proceeding.

DEWHA has developed an interactive database to provide further information on matters of national environmental significance (for example Ramsar wetlands, endangered species, World and National Heritage areas). The database is available at: http://www.environment.gov.au/erin/ert/epbc/index.html.

Potential bidders are encouraged to consult this database with respect to a permit area of interest before finalising their work program bids.

If a proponent is unsure whether approval is required, the proposed activity can be referred to the Environment Minister for a decision on whether the action requires further assessment and approval under the EPBC Act. In the first instance, preliminary advice on the referral process can be obtained from the Assistant Secretary, Environment Assessment Branch, DEWHA (ph: +61 2 6274 2240). Published guidelines on significance are available at http://www.environment.gov.au/epbc/index.html or from the Community Information Unit on 1800 803 772 (free call within Australia only) or e-mail: ciu@environment.gov.au.

Heritage values

Listed heritage values are protected and managed under a range of Commonwealth powers.

The **National Heritage List** has been established to include places of outstanding heritage significance to Australia. The National Heritage List comprises places with natural, historic and/or Indigenous values. A place entered in the National Heritage List is known as a National Heritage place. Each place in the List has been assessed by an independent body, the Australian Heritage Council, to determine whether the place has national heritage values. The Environment Minister makes the final decision on whether a place will be listed.

Places in the list are protected under the EPBC Act as matters of NES. Prior approval must be obtained before any action takes place which has, will have, or is likely to have, a significant impact on the national heritage values of a listed place. To have a significant impact on the values of a National Heritage place it is not necessary for an action to be taken within the National Heritage place.

The National Heritage List is compiled and maintained by DEWHA and is available at: http://www.environment.gov.au/heritage/ahdb/index.html.

The **Commonwealth Heritage List**, established under the EPBC Act, comprises natural, Indigenous and historic heritage places on Commonwealth land, in Commonwealth waters and within areas under Australian Government control. Places on the List have been assessed by the Australian Heritage Council as having Commonwealth heritage values.

In addition, Australian Government agencies are required to develop:

- Heritage strategies,
- A heritage register, and
- Management plans for places on the Commonwealth Heritage List

to protect the heritage values of the Commonwealth Heritage Places they own or lease.

As of December 2008 there are 81 places on the National Heritage List, 17 places on the World Heritage List and 339 places included in the Commonwealth Heritage List. These lists include some offshore areas. New places are added to the lists on an ongoing basis. The database should be investigated for relevant areas at: http://www.environment.gov.au/heritage.

Under the *Australian Heritage Council Act 2003*, the **Register of the National Estate (RNE)** is Australia's national inventory of places of significant natural and/or cultural (historic and/or indigenous) heritage. The Environment Minister is required to consider information in the RNE when making decisions under the EPBC Act. GHG exploration and development activities or 'actions' that could significantly impact on the heritage values of RNE listed places should be referred under the EPBC Act, as these RNE values are part of the heritage values of the Commonwealth marine environment.

Historic Shipwrecks Act 1976

The Commonwealth *Historic Shipwrecks Act 1976* protects historic shipwrecks and associated relics found in Australian waters from the low water mark to the edge of the continental shelf. The *Historic Shipwrecks Act 1976* aims to ensure that historic shipwrecks are protected for their heritage values and maintained for recreational and educational purposes. It also regulates activities that may result in the damage, interference, removal or destruction of an historic shipwreck or associated relic.

Under the *Historic Shipwrecks Act 1976*, all shipwrecks which are over 75 years old are protected, together with their associated relics, regardless of whether their actual locations are known. The Environment Minister can also make a declaration to protect any historically significant shipwrecks or relics that are less than 75 years old.

Under the *Historic Shipwrecks Act 1976*:

- anyone who finds the remains of a shipwreck or relics associated with a shipwreck is required to give notification of the location as soon as practicable to the Environment Minister, and
- historic relics must not be removed, or the physical fabric of a wreck disturbed, unless a permit has been obtained.

The *Historic Shipwrecks Act 1976* also provides for protected zones to be declared in order to enhance the protection of historic shipwrecks and relics which are of special significance or sensitivity or at particular risk of interference. Permits are required to enter protected zones, which can cover an area up to 200 hectares.

It should be noted that, although the *Historic Shipwrecks Act 1976* does not currently provide for the protection of the natural environment associated with shipwrecks, these natural components form an integral part of historic shipwreck sites and are often critical to the long term preservation of shipwrecks and relics. Damage to these natural components can result in increased deterioration of shipwrecks and consequently affect the shipwrecks role as a marine habitat.

Further information about the Act can be found at:
http://www.environment.gov.au/heritage/shipwrecks/index.html.

Cetaceans and the EPBC Act

The 2009 Release of GHG exploration areas includes areas that are in recognised whale migration corridors and important aggregation areas.

A policy statement on the interaction between offshore seismic exploration and whales has been developed by DEWHA in consultation with industry, whale research scientists and conservation groups. The *EPBC Act Policy Statement 2.1 - Interaction between offshore seismic exploration and whales, September 2008* can be obtained online at:
http://www.environment.gov.au/epbc/publications/seismic.html

This Policy Statement provides guidance on the practical application of the EPBC Act to seismic surveying and assists proponents in addressing their legal obligations. The document outlines standard management measures (Part A) that should be used at all times when operating in Australian waters, and outlines additional management measures (Part B), which should be used in areas where there is a moderate to high likelihood of encountering whales.

Seismic surveys should not be proposed in areas where and when whales are likely to be breeding, calving, resting or feeding. If proposed, these surveys and associated mitigation measures will need careful consideration and may require further assessment under the EPBC Act.

Under the EPBC Act there is a requirement to obtain a permit for any activity impacting upon cetaceans, incidentally or otherwise, in Commonwealth waters. Cetaceans include whales, dolphins and porpoises. Further information on permits is provided in EPBC Act Policy Statement 2.1 and may also be found at: http://www.environment.gov.au/epbc/permits/index.html.

Marine bioregional planning

The Australian Government has embarked on a program of marine bioregional planning under the EPBC Act. Under the program, Marine Bioregional Plans will be developed for the five marine regions in Commonwealth waters by 2012. The program is in an early stage and the plans, once in place, will provide information to marine industries that will assist them in understanding their obligations under the EPBC Act, including matters of National Environmental Significance. The Plans will be established under section 176 of the EPBC Act, acting as a key document to inform the Environment Minister, industry and other stakeholders about the key conservation values and priorities in each marine region.

The marine bioregional planning process will include the identification and establishment of representative marine protected areas (MPAs) in Commonwealth waters.

A number of areas in the 2009 release are in the vicinity of sensitive marine regions and may be subject to a higher level of environmental scrutiny, as described below in the Notices for Specific Areas.

Further information on Marine Bioregional Planning can be found at: http://www.environment.gov.au/coasts/mbp/index.html.

5.2.2 *Navigation*

To ensure that navigational safety requirements are met, successful applicants will be required to maintain close contact with the Rescue Co-ordination Centre (RCC) at the Australian Maritime Safety Authority (AMSA) well in advance of the commencement of, and during, seismic surveys and drilling operations in order that navigational warnings can be issued. This is especially important for operations in any permits granted over areas located on or near major shipping routes. For further information, see below in the Notices for Specific Areas.

Australian Maritime Safety Authority
Telephone (Maritime): 1800 641 792 (Free call within Australia only)
Telephone (Aviation): 1800 815 257 (Free call within Australia only)
Facsimile (Free call): 1800 622 153 (Free call within Australia only)
E-mail: RCCAus@amsa.gov.au (24 hrs/365days)
Website: www.amsa.gov.au

5.2.3 *Fishing activities*

All companies awarded assessment permits will be required to initiate contact with Commonwealth and/or State fisheries management agencies and local fishing industry bodies concerning their exploration operations. This contact should be initiated at the earliest possible stage when planning operations. Radio contact is to be maintained with fishing operators in the area during exploration operations. In the first instance, it is suggested that contact be made

with the Australian Fisheries Management Authority (AFMA) and relevant State agencies for the latest information on appropriate contacts within relevant Management Advisory Committees or fishing industry organisations.

AFMA can be contacted at:

Australian Fisheries Management Authority
Environment Policy Section
PO Box 7051
Canberra Business Centre ACT 2610
Telephone: +61 2 6225 5555
Facsimile: +61 2 6225 5446

Regularly updated contact details for the AFMA officer handling petroleum exploration enquires are at http://www.afma.gov.au/environment/other_factors/default.htm.

AFMA wishes to stress the importance of removing debris, and requests that explorers make every attempt to leave assessment areas free of obstruction. In circumstances where this is not practicable, any remaining debris should be reported to the relevant peak fishing industry bodies. This is particularly important in the trawl fisheries: Commonwealth Trawl Fishery, Great Australian Bight Trawl Fishery, Northern Prawn Fishery, North West Slope Trawl Fishery and the Western Deepwater Trawl Fishery.

It should be noted that the spatial distribution and intensity of fishing activities can be highly variable over time. It is for this reason that it is recommended that explorers liaise with AFMA regarding all exploration activities in Commonwealth waters to get the most up-to-date information on fishing activity and industry contracts.

5.2.4 *Defence requirements*

For all release areas, successful applicants will be required to notify the Australian Hydrographic Office of any exploration activity including suspended well heads or proposed infrastructure developments. This will enable relevant navigational charts to be updated and the issue of appropriate navigational warnings. Contact details are provided below.

Some of the areas in the release coincide with military restricted airspace. When activated by a Notice to Airmen (NOTAM), the restricted airspace can operate down to low altitudes including, at times, to sea level. Non-Defence flying operations are required to be conducted in accordance with NOTAM restrictions.

Successful applicants will need to liaise with Air Force Headquarters (AFHQ) during the planning phase and to notify them of any activity. Title holders will need to provide positions and dimensions (lateral and vertical) of all associated fixed and mobile infrastructure including drilling rigs. Additionally, Headquarters Air Command (HQAC) requires advice, within 48 hours, of any change in position of exploration activities to avoid conflict with Defence exercise activity. Contact details are set out below.

Offshore areas may coincide with Military Exercise Areas (MEAs) or Defence Practice Areas (DPAs). Potential applicants are advised that the Minister for Defence has the authority, under the *Defence Force Regulations 1952*, to declare and Gazette any area of sea or air space as a

DPA, for carrying out Defence operations or practice as specified in a NOTAM or a Notice to Mariners (NOTMAR). When a DPA is activated, unauthorised access to the area will be prohibited.

As there is potential for unexploded ordnance on the sea floor in either MEAs or DPAs, applicants should be aware of the risks involved in conducting exploration activities. In addition, as training exercises can take place at any time and often involve the use of live fire, permit holders must consult with the Department of Defence to minimise the applicant's own risk. Details of release areas that coincide with MEAs or DPAs are provided below in the Notices for Specific Areas.

Locations of restricted and prohibited areas, including maps, are listed in Annual Australian NOTAM and Australian Annual NOTMAR publications, which are available from the RAAF AIS website (Designated Airspace Handbook) and the RAN Hydrographic Office website (available under 'Annual Notices') respectively (see addresses below).

The following Defence contacts will be able to advise of planned Defence activities in specific areas:

General Defence Assistant Secretary Property Services Branch BP3-2-A070 Department of Defence Canberra ACT 2609 Telephone: +61 2 6266 8650 Facsimile: +61 2 6266 8429	**Australian Hydrographic Office** Mr Mark Bolger Manager Nautical Assessment and Maintenance Hydrographic Office, Locked Bag 8801 Wollongong NSW 2500 Telephone: +61 2 4223 6590 Facsimile: +61 2 42233 6599 E-mail: hydro.ntm@defence.gov.au Website: www.hydro.gov.au
Air Force Headquarters (AFHQ) Squadron Leader Lyle Holt Telephone: +61 2 6265 14377 E-mail: lyle.holt@defence.gov.au **Headquarters Air Command (HQAC)** Watch keeper Telephone: +61 2 4737 7222	**Royal Australian Navy** Staff Officer Navy Basing Policy Navy Headquarters R1-4-B136 Russell Offices Department of Defence Canberra ACT 2600 Telephone: +61 2 6265 5177 Facsimile: +61 2 6265 2036

5.2.5 *Telecommunication (submarine) cables*

Successful applicants can contact an information number 1800 652 388 (free call within Australia) to obtain cable position information. They need to be aware that the Government has recently enacted legislation to protect submarine telecommunications cables. The *Telecommunications and Other Legislation Amendment (Protection of Submarine Cables and Other Measures) Act 2005* provides for a protection zone to extend one nautical mile on each side of certain submarine telecommunications cables. Under the Act, GHG storage activities may be restricted or prohibited in a protection zone. Successful applicants should contact the Australian Communications and Media Authority (ACMA) on 1300 856 337 for further

information. Additional information on the submarine protection zone regime including maps and zone coordinates can be found on the ACMA website at www.acma.gov.au/subcables.

Telstra has an extensive submarine cable network which is critical for its business to serve its customers. Anyone causing damage to Telstra's facilities will be liable for the damage caused, which may include criminal liability. Therefore, companies proposing to carry out exploration or construction activities in area in the released areas must ensure that Telstra's submarine cable facilities are not damaged during such activities. Plans showing the indicative locations of Telstra's submarine cables can be requested by dialling free call "1100" number.

5.2.6 *Native title rights and interests*

Applicants should be aware that Aboriginal representative organisations may have interests in some release areas, particularly those that are closer to shore. It is recommended that successful applicants liaise closely with Native Title Representative Bodies and registered native title claimants on proposed exploration activities.

Contact details for Native Title Representative Bodies can be found on the Native Title Representative Bodies website at http://www.ntrb.net/PublicPages/Login.aspx.

Details of relevant registered claimants can be obtained by contacting the National Native Title Tribunal (NNTT) on 1800 640 501.

If an area is not covered by any native title determination application, determinations of native title or indigenous land use agreements, this does not necessarily mean that there are no indigenous people who assert rights to the area or that the Commonwealth does not need to consider the application of the future act regime under the *Native Title Act 1993.*

Ask First: A guide to respecting Indigenous heritage places and values provides a practical guide for land developers, land users and managers, cultural heritage professionals and many others who may have an impact on Indigenous heritage. *Ask First* can be downloaded from the Australian Heritage Council website at http://www.environment.gov.au/heritage/ahc/publications/commission/books/pubs/ask-first.pdf.

5.3 Notices for specific areas

5.3.1. *Special notices – areas Gipp-01, Gipp-02 and Gipp-03, Gippsland Basin, Victoria*

Environment protection

Release areas Gipp-01, Gipp-02 and Gipp-03 are adjacent to the Beagle Commonwealth Marine Reserve, a shallow reserve with rocky reefs that support a rich array of life and provide homes to seabirds, Little penguins (*Eudyptula minor*) and Australian fur seals (*Arctocephalus pusillus*). There is a general approval to conduct seismic activities in this area, subject to conditions. It should be noted that these conditions are also relevant to seismic vessels and other associated vessels using these areas to **transit or turn around when conducting seismic surveys.** More information can be found on the Department of the Environment, Water, Heritage and the Arts (DEWHA) website: http://www.environment.gov.au/coasts/mpa/publications/southeast-mining-seismic.html

a. Cetaceans

The release areas are in close proximity to the Bonney Upwelling. The release areas are transited by the endangered and migratory Southern Right whale (*Eubalaena australis*) between April and October and the vulnerable and migratory Humpback whale (*Megaptera novaeangliae*) between April and December.

The endangered and migratory Blue whale (*Balaenoptera musculus*), and the vulnerable and migratory Fin whale (*B. physalus*) and Sei whale (*B. borealis*) use these areas to access the Bonney Upwelling for feeding between December and May.

All exploration activities in these areas should be planned in accordance with the *EPBC Act Policy Statement 2.1 – Interaction between offshore seismic exploration and whales (September 2008),* as prepared by DEWHA, in consultation with industry and other stakeholders. The Policy Statement outlines standard management measures (Part A) that should be used at all times when operating seismic surveys in Australian waters. Applicants should consider implementing additional management measures (Part B) when operating in areas and at times where there is a moderate to high likelihood of encountering whales.

b. Wetlands of international importance

Release area Gipp-01 is approximately 7 km South-west of the Corner Inlet Ramsar site. The Ramsar site supports many threatened bird species including the Little terns (*Sterna albifrons sinensis*) and Fairy terns (*S. nereis*) which breed in the wetland. Corner Inlet is of international zoological significance for its migratory wader population. Organisms living on the sea floor and within the sediment of the mudflats and sand flats are typical of unpolluted, non-estuarine soft sediments. There is a wide variety of species of polychaetes and amphipods, and large numbers of several species of bivalve molluscs, crabs, and burrowing sea anemones. The area contains the only extensive bed of the broad-leafed seagrass, *Posidonia australis* in Victoria. The fine-leafed seagrasses, *Zostera muelleri* and *Heterzostera tasmanica,* occur in shallow water throughout the whole of the embayment. The islands of Corner Inlet are of national botanical significance. Although not floristically rich, the islands are of high biogeographical significance as a result of their past submergences. The islands also contain significant areas of saltmarsh and mangroves, both of which are communities of very limited distribution. Seismic activities in this area have the potential to impact on the Southern Right Whale (*E. australis*), which occurs in and adjacent to the Ramsar site.

If a GHG activity is undertaken in the release area it is unclear at this stage as to the level of risk this action may pose on the Ramsar site, given the limited understanding of the longevity of gas storage, the distance between the proposed release area, any subsea-bed geological formations, and the Ramsar site, as well as the tidal hydrology and the weather patterns in the area. Applicants should be aware that any proposed GHG activities in this region may require assessment and approval under the EPBC Act.

Navigation

Release areas Gipp-01 to Gipp-03 overlap major shipping routes. Therefore, heavy traffic will be encountered in these areas. As exploratory drilling rigs are likely to be subject to significant hazard, the Australian Maritime Safety Authority (AMSA) will require explicit anti-collision measures to be put in place including the continuous presence of an escort vehicle. Any

proposals for permanent above water installations should be discussed with AMSA which will need to reroute shipping in consultation with the International Maritime Organisation. AMSA contact details are set out above under 'Notices for All Areas'. Details, including a map, of the Traffic Separation Scheme can be obtained from www.amsa.gov.au/amsa/mn/mn2001/mn1301.htm.

Fishing activities

The Gillnet Hook and Trap and Commonwealth Trawl sectors of the Southern and Eastern Shark and Scalefish Fishery, Eastern Tuna and Billfish, Small Pelagic, Bass Strait Scallop and Southern Squid Jig Fisheries extend across release areas Gipp-01 to Gipp-03. These areas are of particular importance to the Commonwealth Trawl and Gillnet, Hook and Trap sectors of the Southern and Eastern Shark and Scalefish Fishery. Due to the extensive fishing activity in the areas, successful applicants will need to liaise with representatives of the above fishing interests at an early stage in planning all operational activities.

Telecommunications

Telstra has two existing operational submarine cables, Bass Strait -1 (BS-1); and Bass Strait -2 (BS-2) cables, in the vicinity of release areas. The BS-1 cable runs between Sandy Point (Waratah Bay) in Victoria and Boat Harbour in Tasmania and the BS-2 cable between Inverloch in Victoria to Stanley in Tasmania. Both the cable routes are marked in the current navigational survey charts. Details of locations of these submarine cables can be obtained by contacting Telstra on free call number, "1100".

Native title claims

The Notational Native Title Tribunal (NNTT) has advised that the release area Gipp-01 overlaps with a registered native title claim by Gunai/Kunai People. Applicants can obtain further information by contacting NNTT on 1800 640 501.

5.3.2. *Special notices – areas Torq-01 and Torq-02, Torquay Sub-basin, Victoria*

Environment protection

These areas are adjacent to the Apollo Commonwealth Marine Reserve, which provides habitat for Australian fur seals (*A. pusillus*) and school sharks. There is a general approval to conduct seismic activities in this area, subject to conditions. It should be noted that these conditions are also relevant to seismic vessels and other associated vessels using these areas to transit or turn around when conducting seismic surveys. More information can be found on the DEWHA website:
http://www.environment.gov.au/coasts/mpa/publications/southeast-mining-seismic.html

a. Cetaceans

Release areas Torq-01and Torq-02 are transited by the endangered and migratory Southern Right whale (*Eubalaena australis*) between April and October and small numbers of the vulnerable and migratory Humpback whale (*Megaptera novaeangliae*) between April and December.

The endangered and migratory Blue whale (*Balaenoptera musculus*), and the vulnerable and migratory Fin whale (*B. physalus*) and Sei whale (*B. borealis*) use these areas to access the Bonney Upwelling for feeding between December and May.

All exploration activities in these permit areas, should be planned in accordance with the *EPBC Act Policy Statement 2.1 – Interaction between offshore seismic exploration and whales (September 2008)*, as prepared by the Department of the Environment, Water, Heritage and the Arts, in consultation with industry and other stakeholders. The Policy Statement outlines standard management measures (Part A) that should be used at all times when operating seismic surveys in Australian waters. Applicants should consider implementing additional management measures (Part B) when operating in areas and at times where there is a moderate to high likelihood of encountering whales.

Applicants should be aware that any proposed activities in this region are likely to be subject to a high level of environmental scrutiny, and may require assessment and approval under the EPBC Act.

b. Wetlands of international importance

Release areas Torq-01 and Torq-02 are adjacent to the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site and the Western Port Ramsar Site. Torq-02 is approximately 8 km South of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site and approximately 15 km south-west of the Western Port Ramsar site. Seismic activity in this area may pose a risk to marine mammals identified in the *Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar Site Management Plan*, including the Bottlenose dolphin (*Tursiops spp.*), Common dolphin (*Delphinus delphis*), Leopard seal (*Hydrurga leptonx*) and the Australian fur seal (*Arctocephalus pusillus*).

If a GHG activity is undertaken in the release area it is unclear at this stage as to the level of risk this action may pose on the Ramsar site, given the limited understanding of the longevity of gas storage, the distance between the proposed release area, any subseabed geological formations, and the Ramsar site, as well as the tidal hydrology and the weather patterns in the area. Applicants should be aware that any proposed GHG activities in this region may require assessment and approval under the EPBC Act.

Fishing activities

The Gillnet Hook and Trap and Commonwealth Trawl sectors of the Southern and Eastern Shark and Scalefish Fishery, Eastern Tuna and Billfish, Small Pelagic, Bass Strait Scallop and Southern Squid Jig Fisheries extend across release areas Torq-01 and Torq-02. These areas are of moderate importance to the Commonwealth Trawl sector of the Southern and Eastern Shark and Scalefish Fishery. It also is in the vicinity of breeding age school sharks migrating outside the continental shelf between September and December. Fishing interests have concerns about seismic surveys being conducted in waters shallower than 800 metres during this period. Accordingly, successful applicants will need to liaise with representatives of the above fishing interests at an early stage in planning operational activities such as seismic surveys.

Defence requirements

Release areas Torq-01 and Torq-02 overlap with the Defence Practice Areas R339, R323A and R323B (the West Head Gunnery Range). These areas are used by the Royal Australian Navy

(RAN) for a range of military training operations including gunnery and live firing, military flying and other naval activities. As such, access may be restricted with all sea and air craft possibly being ordered to evacuate the DPA at short notice. Applicants are advised that Defence exercise schedules are variable and may change at short notice. Therefore, successful applicants will need to liaise closely with the RAN on timing and location of any proposed exploration activities and during the planning phase for any proposed permanent structures.

Potential applicants should also note that, as the above areas are used for live firings, unexploded ordnance may exist on the sea floor. This carries with it an associated risk of detonation, which will be borne by the applicants. As such, the Australian Government provides no guarantee or indemnity to title holders or others with regard to the safety or whereabouts of unexploded ordnance in such areas.

Defence Practice Areas R339, R323A and R323B are also military restricted airspace areas. When activated by a Notice to Airmen (NOTAM), the restricted airspace can operate down to sea level. Successful applicants will need to liaise with the Department of Defence during the planning phase of operations and to provide information on the proposed location of any drilling rigs for inclusion on the register of structures database that is maintained by the Royal Australian Air Force Aeronautical Information Service (RAAF AIS).

Contact details for the various Defence activities are set out above under 'Notices for All Areas'.

5.3.3. *Special notices – area Otwy-01, Otway Basin, South Australia*

Environment protection

This area is adjacent to the Murray Reserve Multiple Use Zone, part of the South-east Commonwealth Marine Reserve Network. There is a general approval to conduct seismic activities in this area, subject to conditions. It should be noted that these conditions are also relevant to seismic vessels and other associated vessels using these areas to transit or turn around when conducting seismic surveys. More information can be found on the DEWHA website:
http://www.environment.gov.au/coasts/mpa/publications/southeast-mining-seismic.html.

a. Cetaceans

Otwy-01 is closely located to two Southern right whale (*Eubalaena australis*) calving areas: one at Encounter Bay and the other at Sleaford Bay. The species is listed as endangered and migratory under the EPBC Act. Encounter Bay, the closest calving area, is identified within the *Southern Right Whale Recovery Plan 2005-2010* as a core Southern right whale (*E. australis*) calving area during the months May to November. Sleaford Bay is identified as being used intermittently by small number of Southern right whale (*E. australis*) mothers and young calves.

The endangered Blue whale (*Balaenoptera musculus*), the vulnerable Fin whale (*B. physalus*) and Sei whale (*B. borealis*) transit this area to access the Bonney Upwelling for feeding between December and May.

All exploration activities in these permit areas, should be planned in accordance with the *EPBC Act Policy Statement 2.1 – Interaction between offshore seismic exploration and whales*

(September 2008), as prepared by the Department of the Environment, Water, Heritage and the Arts, in consultation with industry and other stakeholders. The Policy Statement outlines standard management measures (Part A) that should be used at all times when operating seismic surveys in Australian waters. Applicants should consider implementing additional management measures (Part B) when operating in areas and at times where there is a moderate to high likelihood of encountering whales.

Applicants should be aware that any proposed activities in this region are likely to be subject to a high level of environmental scrutiny, and may require assessment and approval under the EPBC Act.

b. Wetlands of international importance

This area is approximately 60km south of the Coorong and Lakes Alexandrina and Albert Ramsar site. The Ramsar site is recognised as having high conservation values. Of relevance is that the wetland consists of ocean beach, together with the mouth of the River Murray and associated lakes and estuaries and therefore has direct connectivity with the Southern ocean. This combination provides a wide range of habitats from freshwater to hypersaline which are mostly in a natural state and provides important breeding habitat for a diversity of bird species. The area is used by the Orange-bellied Parrot (*Neophema chrysogaster*), which is listed as critically endangered under the EPBC Act, during the over-wintering period.

If GHG is undertaken in the release area it is unclear at this stage as to the level of risk this action may pose on the Ramsar site, given the limited understanding of the longevity of gas storage, the distance between the proposed release area, any subseabed geological formations, and the Ramsar site, as well as the tidal hydrology and the weather patterns in the area. Applicants should be aware that any proposed GHG activities in this region may require assessment and approval under the EPBC Act.

Navigation

Release area Otwy-01 is traversed by major shipping routes between Bass Strait and South Australian ports. AMSA advises that this area has moderately heavy traffic. Successful applicants will need to maintain close contact with the Rescue Co-ordination Centre (RCC) at AMSA well in advance of the commencement of, and during, any seismic surveys or drilling operations in order that navigational warnings can be issued. AMSA contact details are set out above under ‘Notices for All Areas’.

Fishing activities

The Eastern Tuna and Billfish Fishery and the Gillnet, Hook and Trap and Commonwealth Trawl sectors of the Southern and Eastern Shark and Scalefish Fishery overlap with release area Otwy-01. AFMA advises that area is of moderate importance to the Commonwealth Trawl and the Gillnet, Hook and Trap sectors of the Southern and Eastern Shark and Scalefish Fishery. It also is in the vicinity of breeding age school sharks migrating outside the continental shelf between September and December. Fishing interests have concerns about seismic surveys being conducted in waters shallower than 800 metres during this period. Accordingly, successful applicants will need to liaise with representatives of the above fishing interests at an early stage in planning operational activities such as seismic surveys.

Defence requirements

The northern portion of release area Otwy-01 overlaps a Military Exercise Area (the South Australia Exercise Area, SAXA) including R282 and coincides with a Defence Practice Area (Kangaroo Island South). This area is used by the Air Force and Navy for a wide range of training activities, including weapons testing and live gunnery firings. Applicants are advised that training schedules are variable and may change at short notice. Access to affected permit areas may also be restricted. They should also be aware that all sea and air craft can be ordered to evacuate the practice areas at short notice. Successful applicants will be required to liaise closely with the Navy on timing and location of any proposed operations and during the planning phase for any proposed permanent structures.

Potential applicants should also note that, as the practice area is used for live firings, unexploded ordnance may exist on the sea floor. This carries with it an associated risk of detonation, which will be borne by the applicants. As such, the Australian Government provides no guarantee or indemnity to title holders or others with regard to the safety or whereabouts of unexploded ordnance in such areas.

The release area also coincides with military restricted airspace area (R282). When activated by a Notice to Airmen (NOTAM), the restricted airspace can operate down to sea level. Successful applicants will be required to liaise with the Department of Defence during the planning phase of operations and to provide information on the proposed location of any drilling rigs for inclusion on the register of structures database that is maintained by the Royal Australian Air Force Aeronautical Information Service (RAAF AIS).

Contact details for the various Defence activities are set out above under ‘Notices for All Areas’.

5.3.4. *Special notices – areas Vlam-01 and Vlam-02, Vlaming Sub-basin, Western Australia*

Environment Protection

a. Cetaceans

Humpback whales (*Megaptera novaeangliae*) are known to migrate through both of the Western Australian release areas, with peak numbers between late June and mid-October. The species is listed as both vulnerable and migratory under the EPBC Act. Nearby Geographe Bay is also used by humpback whale (*M. novaeangliae*) cow-calf pairs and attendant males as a resting area during the southern migration between September and mid-October.

The Perth Canyon off Rottnest Island is a known feeding area used by listed endangered and migratory Blue whales (*B. musculus*) from December to April each year. There have been reports of Blue whales (*Balaenoptera musculus*), including some nursing cow-calf pairs, resting in waters from south of Mandurah to Geographe Bay between October and December.

Listed migratory Antarctic minke whales (*B. bonarensis*) are reported to use the eastern part of the Perth Canyon with numbers peaking in October. Beaked whales, such as Gray’s beaked whale (*Mesoplodon grayi*), are reported to use the Perth Canyon for feeding during the summer months. Listed migratory Sperm whales (*Physeter macrocephalus*) and listed migratory Dwarf

minke whales (*B. acutorostrata*) are reported to use the deeper parts of Perth Canyon and the shelf waters to the east of the Perth Canyon, respectively.

All exploration activities in these permit areas, should be planned in accordance with the *EPBC Act Policy Statement 2.1 – Interaction between offshore seismic exploration and whales (September 2008)*, as prepared by DEWHA, in consultation with industry and other stakeholders. The Policy Statement outlines standard management measures (Part A) that should be used at all times when operating seismic surveys in Australian waters. Applicants should consider implementing additional management measures (Part B) when operating in areas and at times where there is a moderate to high likelihood of encountering whales.

b. Commonwealth marine area

These release areas include part of the west coast canyons (including the Perth Canyon) and adjacent shelf areas, as well as the meso-scale eddy that occurs in the vicinity of Perth Canyon. These features have been identified as Key Ecological Features of the South-west Marine Region in the *South-west Marine Region's Bioregional Profile:* http://www.environment.gov.au/coasts/mbp/publications/south-west/sw-region-profile.html.

Applicants should provide detailed information regarding the potential impacts of GHG on these areas and oceanographic processes specifically as part of their consideration of the potential impacts of their activities on the Commonwealth marine environment.

The Australian Government is currently working towards establishing a representative network of marine reserves, with the identification of candidate areas expected to be finalised by mid-2009. Applicants of Vlam-01 and Vlam-02 are encouraged to contact DEWHA for further information on this matter, and to visit the Department website for the latest information: http://www.environment.gov.au/coasts/mbp/index.html.

c. Wetlands of international importance

These areas are approximately 10km west of the Peel-Yalgorup System Ramsar Site and 20km west of the Becher Point Wetlands Ramsar site. These Ramsar sites are recognised as having high conservation value.

The level of risk that GHG may pose to the Ramsar sites is unclear at this stage, given the limited understanding of the longevity of gas storage, the distance between the proposed release area and the Ramsar site and the tidal hydrology and weather patterns in the area. Applicants should be aware that any proposed GHG storage activities in this area may require assessment and approval under the EPBC Act.

Navigation

Release areas Vlam-01 and Vlam-02 are traversed by shipping traffic on the southern approaches to Cockburn Sound and Fremantle. AMSA advises that this area has moderately heavy traffic. Successful applicants will need to maintain close contact with the Rescue Co-ordination Centre (RCC) at AMSA well in advance of the commencement of, and during, any seismic surveys or drilling operations in order that navigational warnings can be issued. AMSA contact details are set out above under 'Notices for All Areas'.

Fishing activities

The Western Tuna and Billfish Fishery and the Western Deepwater Trawl Fishery overlap with release areas Vlam-01 and Vlam-02. Successful applicants will need to liaise with fishing interests at an early stage in planning operational activities.

Defence requirements

Release areas also overlap with the Defence Practice Areas (West Australian Exercise Area) (R144 and R119C). These areas are used by the Air Force and Navy respectively for a wide range of training activities, including missile and gunnery firings. Applicants are advised that training schedules are variable and may change at short notice. Access to affected permit areas may also be restricted. They should also be aware that all sea and air craft can be ordered to evacuate the practice areas at short notice. Successful applicants will be required to liaise closely with the Air Force and Navy on timing and location of any proposed operations and during the planning phase for any proposed permanent structures.

Potential applicants should also note that, as the practice area is used for live firings, unexploded ordnance may exist on the sea floor. This carries with it an associated risk of detonation, which will be borne by the applicants. As such, the Australian Government provides no guarantee or indemnity to title holders or others with regard to the safety or whereabouts of unexploded ordnance in such areas.

The release areas also coincide with military restricted airspace areas (R144 and R119C). When activated by a Notice to Airmen (NOTAM), the restricted airspace can operate down to sea level. Successful applicants will be required to liaise with the Department of Defence during the planning phase of operations and to provide information on the proposed location of any drilling rigs for inclusion on the register of structures database that is maintained by the Royal Australian Air Force Aeronautical Information Service (RAAF AIS).

Contact details for the various Defence activities are set out above under ‘Notices for All Areas’.

Telecommunications

Release area Vlam-01 overlaps with the Perth Submarine Cable Protection Zone, which came into effect on 1 February 2008, under Schedule 3A of the *Telecommunications Act 1997*. Within the protection zone, activities that could damage cables are prohibited or restricted.

Details of the Perth Submarine Cable Protection Zone and the rules regarding conducting research that involves contact with the seabed in the zone are set out in the *Submarine Cable (Perth Protection Zone) Declaration 2007*. Significant criminal and civil penalties apply to anyone engaging in a prohibited activity, breaching a restriction or damaging a cable within a protection zone. This Declaration makes provisions for exploration and exploitation of resources (other than marine species), including the use of seismic surveys.

5.3.5. *Special Notices – Areas Ptrl-01 and Ptrl-02, Petrel Sub-basin, Western Australia / Northern Territory*

Environment protection

The proposed release area, Ptrl-01, extends into the Joseph Bonaparte Gulf (JBG) which contains ecologically important carbonate banks and limestone pinnacles which have been classified as Key Ecological Features in the *North-west Marine Region's Bioregional Profile*. The carbonate banks and limestone pinnacles of the JBG are believed to support a high diversity of marine species due to the upwelling of nutrients and the formation of filter feeding coral and sponge communities.

The proposed release area, Ptrl-02, occurs in the Bonaparte Basin which has been identified as a Key Ecological Feature in the *North Marine Region Bioregional Profile*.

The Bonaparte Basin consists of relatively shallow, soft sediments which support high proportion of deposit feeders and scavengers (including echinoids, molluscs, polychaete worms, prawns and crustaceans). This high biomass of benthic organisms supports organisms higher in the trophic structure. Assemblages of pelagic fish species support seabird populations and migratory species such as turtles and cetaceans.

The North Marine Region Bioregional Profile may be found at:
http://www.environment.gov.au/coasts/mbp/publications/north/bioregional-profile.html

a. Turtles

The carbonate banks of the JBG and the channels between them are known foraging areas for the listed vulnerable and migratory Flatback turtle (*Natator depressus*) and the listed endangered and migratory Loggerhead turtle (*Caretta caretta*). The Flatback turtles (*N. depressus*) found in the JBG are considered to be a genetically distinct stock. Nationally and internationally significant Flatback turtle (*N. depressus*) nesting sites occur at coastal sites adjacent to the JBG.

The limestone pinnacles of the Bonaparte Depression are also thought to be important feeding sites for the listed endangered and migratory Olive Ridley turtle (*Lepidochelys olivacea*), the listed vulnerable and migratory Green turtle (*Chelonia mydas*), the Flatback turtle (*N. depressus*) and the Loggerhead Turtle (*Caretta caretta*). Tagging studies have shown that these species migrate to foraging sites within Ptrl-01 and Ptrl-02.

b. Sharks

The listed vulnerable Green sawfish (*Pristis zijsron*) is known to occur in northern Australian waters. This species is predominantly found inshore in areas characterised by soft substrate, however there are records of green sawfish occurring hundreds of kilometres offshore in water depths of 70m.

c. Cetaceans

These areas are located outside the known migratory route of humpback whales, however, the *Recovery Plans for Australia's Threatened Whales 2005-2010* indicate that the species may be present in the area between late July and early September. Two listed migratory dolphin species that may be endemic to Australia, the Australian snub-fin dolphin (*Orcaella heinsohni*)

and the Indo-Pacific humpback dolphin (*Sousa chinensis*), are also found in the release areas and need to be considered when planning activities in the area.

All exploration activities in these permit areas, should be planned in accordance with the *EPBC Act Policy Statement 2.1 – Interaction between offshore seismic exploration and whales (September 2008)*, as prepared by the Department of the Environment, Water, Heritage and the Arts, in consultation with industry and other stakeholders. The Policy Statement outlines standard management measures (Part A) that should be used at all times when operating seismic surveys in Australian waters. Applicants should consider implementing additional management measures (Part B) when operating in areas and at times where there is a moderate to high likelihood of encountering whales.

Fishing activities

The Northern Prawn Fishery and the Western Tuna and Billfish Fisheries extend across release areas Ptrl-01 and Ptrl-02. They coincide with important fishing areas for the Northern Prawn Fishery, with peaks in activity from April to late May and from August to October. Accordingly, due to fishing activity during the above mentioned periods, successful applicants will need to liaise with representatives of both fisheries, but particularly with the Northern Prawn Fishery at an early stage in planning operational activities for these areas.

Defence requirements

Release areas Ptrl-01 and Ptrl-02 overlap a Military Exercise Area (the North Australia Exercise Area, NAXA) including R230 and R264. These areas are used by the Royal Australian Air Force (RAAF) and the Royal Australian Navy (RAN) for all military operations including live weapons and missile firings. Applicants are advised that defence exercise schedules are variable and may change at short notice. Successful applicants will need to liaise closely with the RAAF and RAN on timing and location of any proposed exploration activities or permanent structures during the planning phase.

Release areas also overlap a Defence Practice Area (DPA), R225. As such access may be restricted with all sea and air craft possibly being ordered to evacuate the DPA at short notice.

Potential applicants should also note that, as all the above areas are used for live firings, unexploded ordnance may exist on the sea floor. This carries with it an associated risk of detonation, which will be borne by the applicants. As such, the Australian Government provides no guarantee or indemnity to title holders or others with regard to the safety or whereabouts of unexploded ordnance in such areas.

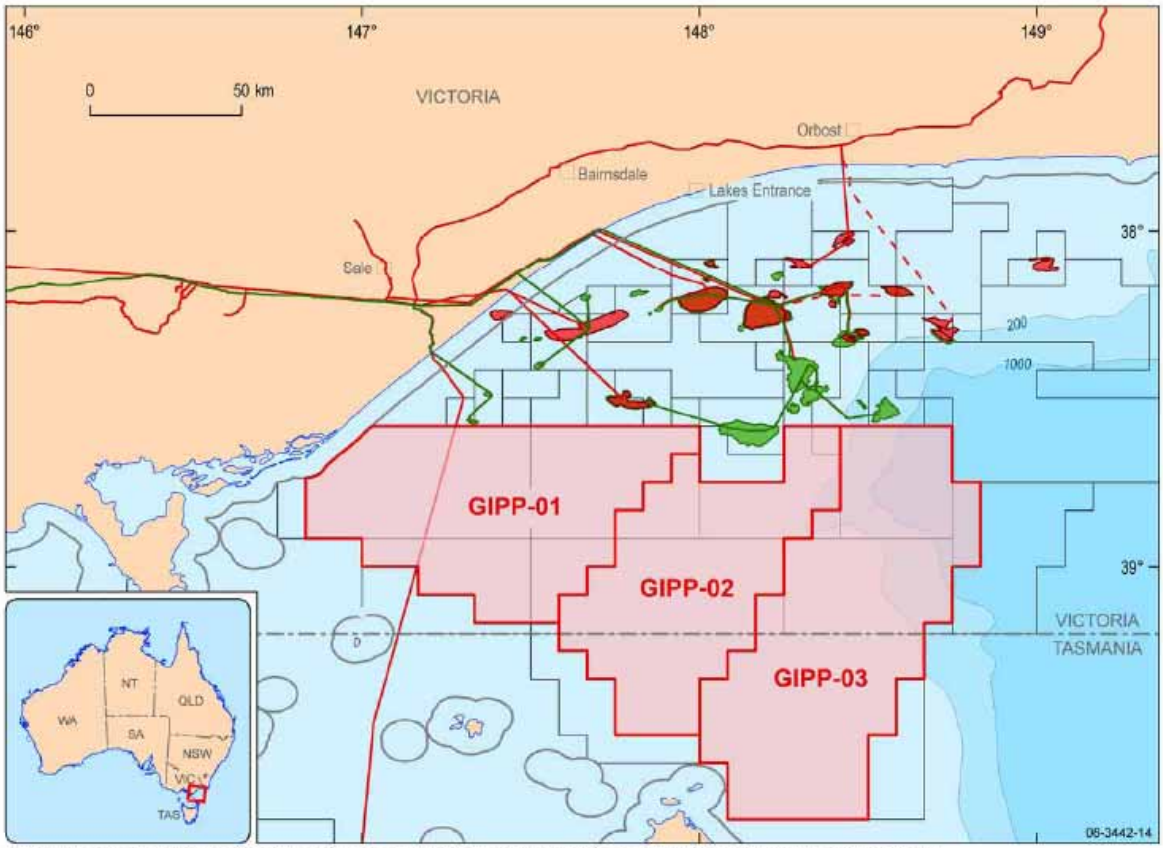
Areas Ptrl-01 and Ptrl-02 also coincide with military restricted airspace areas (R230 and R264). When activated by a Notice to Airmen (NOTAM), the restricted airspace can operate down to sea level. Successful applicants will need to liaise with the Department of Defence during the planning phase of operations and to provide information on the proposed location of any drilling rigs for inclusion on the register of structures database that is maintained by the Royal Australian Air Force Aeronautical Information Service (RAAF AIS).

Contact details for the various Defence activities are set out above under ‘Notices for All Areas’.

Appendix 1

Maps of the areas being released for bidding

Release areas GIPP-01, GIPP-02 and GIPP-03: Gippsland Basin



Field outlines supplied by Encom Petroleum Information Pty Ltd. Field outlines in GPinfo are sourced from the operators of the fields only.
Outlines are updated at irregular intervals but with at least one major update per year.
The Coastal Waters shown on this map are indicative only.
A precise determination of the Coastal Waters will be determined at the time of issue and included in the permit boundary as a Metes and Bounds determination.

- *2009 GHG release area*
- *Existing petroleum title*
- *Gas field*
- *Oil field*
- *Gas pipeline*
- *Oil pipeline*
- *Proposed gas pipeline*
- *Coastal waters limit*
- *Scheduled area boundary (OPGGSA 2006)*
- 200 *Bathymetry contour (metres)*

Gippsland Basin

The Gippsland Basin is located in south-eastern Victoria and extends into Tasmania waters to the south, about 200 km east of Melbourne. Water depths range from 200m to greater than 3000 m. Comprising a world-class petroleum province, the Gippsland Basin has giant oil and gas producing fields and existing infrastructure with widespread seismic coverage and well distribution. The release areas are located along the southern of the Gippsland Basin. The release areas are based on the expected migration pathways.

Reservoir: Top Latrobe Group and intra-Latrobe Group.
Seal: Lakes Entrance Formation regional seal; intra-formational seals of the Latrobe Group.
Trap: Major pinch-out plays and migration dissolution/residual trapping.

Refer to O'Brien et al., 2008 for stratigraphic information.

GIPP-01, GIPP-02 AND GIPP-03, Southern Platform, Gippsland Basin

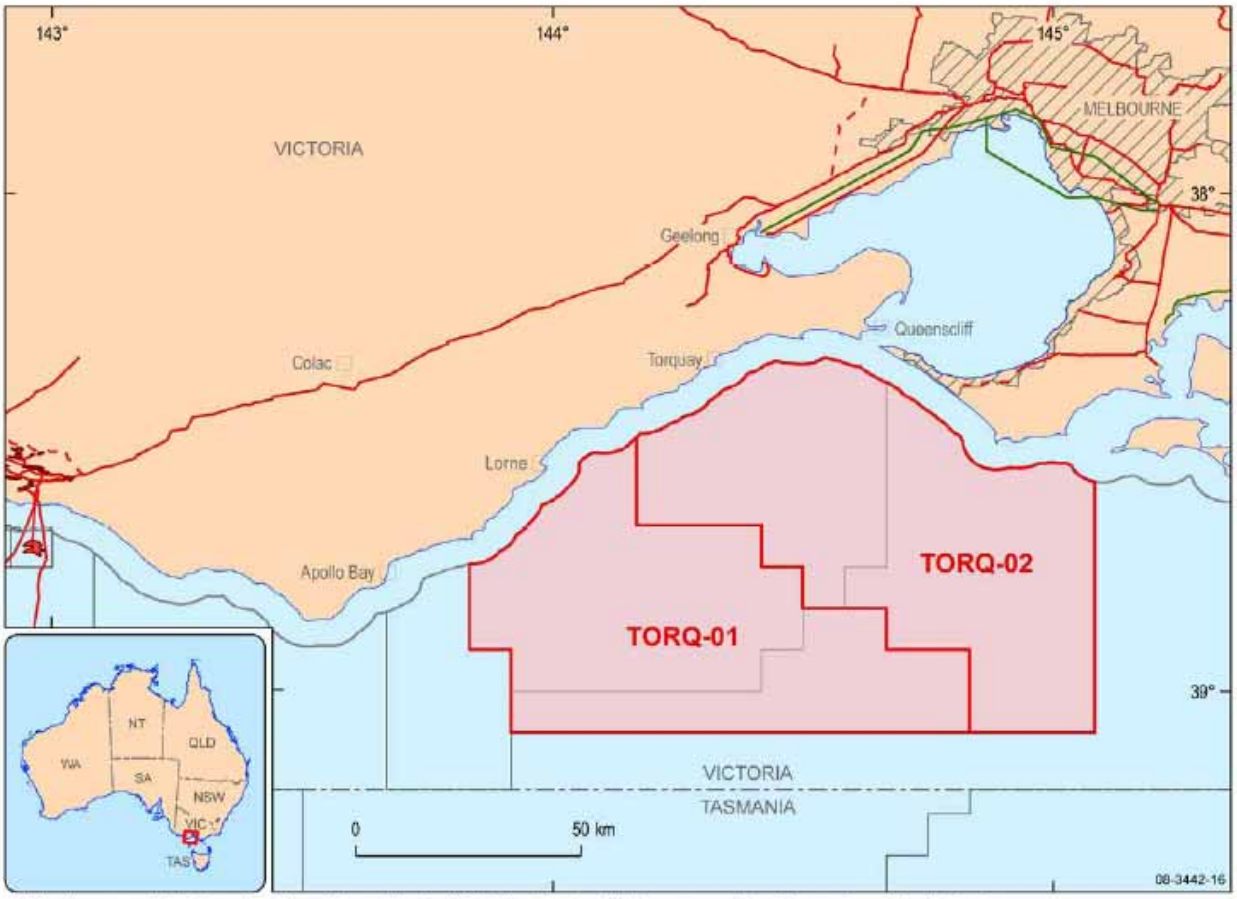
GIPP-01, GIPP-02 and GIPP-03 are located along the southern Gippsland Basin margin and cover much of the Southern Platform in offshore Victoria and Tasmania.

Release area GIPP-01 covers an area of approximately 4385 square kilometres and 67 graticular blocks or parts thereof. Release area GIPP-02 covers an area of approximately 3805 square kilometres and 57 graticular blocks, or parts thereof. Release area GIPP-03 covers an area of approximately 5460 square kilometres and 82 graticular blocks, or parts thereof.

Overlapping Petroleum Exploration Permits

Release Areas	Overlapping Petroleum Titles	Title Holders of Petroleum Titles
GIPP-01	VIC/P42	Apache Energy (**operator**); INPEX; Bass Strait Oil Company
	VIC/P58	Apache Energy
	VIC/P63	Drillsearch Energy Ltd
	VIC/P64	Drillsearch Energy Ltd
GIPP-02	VIC/P42	Apache Energy (**operator**); INPEX; Bass Strait Oil Company
	VIC/P45	Exoil Ltd (**Operator**); Moby Oil & Gas Ltd; Australian-Canadian Oil Royalties Ltd
	VIC/P64	Drillsearch Energy Ltd
	T/46P	Drillsearch Energy Ltd
GIPP-03	VIC/P59	Apache Energy (**Operator**); Kuwait Energy Petroleum Exploration Company
	VIC/P60	Hollman Energy (**Operator**); Australian-Canadian Oil Royalties Ltd; Fly Sakha
	T/46P	Drillsearch Energy Ltd

Release areas TORQ-01 and TORQ-02: Torquay Sub-Basin



Field outlines supplied by Encom Petroleum Information Pty Ltd. Field outlines in GPinfo are sourced from the operators of the fields only.
Outlines are updated at irregular intervals but with at least one major update per year.
The Coastal Waters shown on this map are indicative only.
A precise determination of the Coastal Waters will be determined at the time of issue and included in the permit boundary as a Metes and Bounds determination.

- *2009 GHG release area*
- *Existing petroleum title*
- *Gas field*
- *Gas pipeline*
- *Oil pipeline*
- *Coastal waters limit*
- *Scheduled area boundary (OPGGSA 2006)*

Torquay Sub-Basin

The Torquay Sub-basin is a Mesozoic to Cenozoic depocentre that forms part of the eastern Otway Basin. Water depths are shallow, with a maximum depth of approximately 90 m. Three exploration wells exist in the offshore part of the sub-basin and seismic coverage is moderate. Potential for GHG storage is within long distance migration dissolution/residual trapping, inversion anticlines and hanging wall traps.

Reservoir: Eastern View Group and the overlying Boonah Formation.
Seal: Anglesea Siltstone within the Demons Bluff Group regional seal and intra-formational seals within the Eastern View Group.
Trap: Multiple structural and sedimentary traps and migration dissolution/residual trapping.

Refer to Gibson-Poole et al., 2008 for stratigraphic information.

TORQ-01 AND TORQ-02, Torquay Sub-basin, Otway Basin

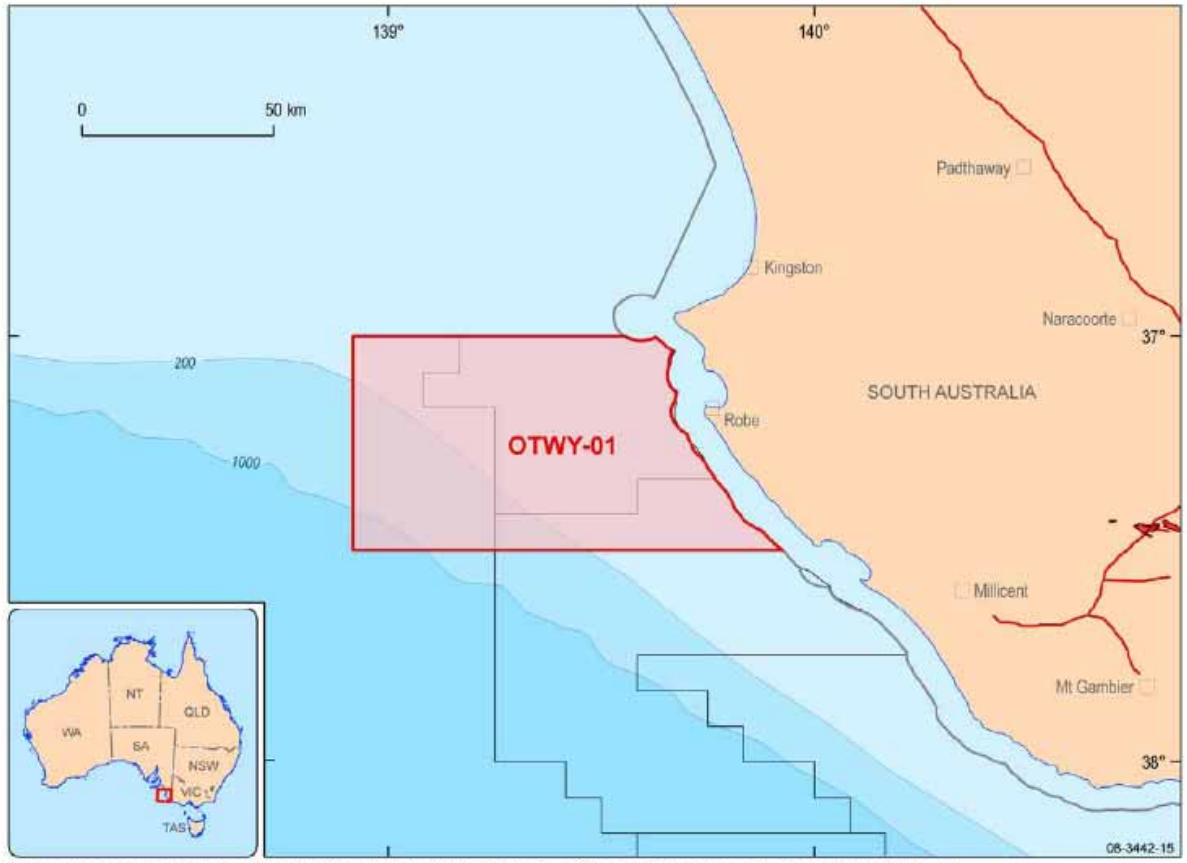
TORQ-01 and TORQ-02 are located approximately 100 km southwest of Melbourne. The release areas are bounded by the coastal waters limit to the north, and extend close to the Victoria/Tasmania border in the south.

Release area TORQ-01 covers an area of approximately 3305 square kilometres and 53 graticular blocks, or parts thereof. The release area TORQ-02 covers an area of approximately 3740 square kilometres and 63 graticular blocks, or parts thereof.

Overlapping Petroleum Exploration Permits

Release Areas	Overlapping Petroleum Titles	Title Holders of Petroleum Titles
TORQ-01	VIC/P62	Trident Energy Ltd
TORQ-02	VIC/P62	Trident Energy Ltd

Release area OTWY-01: Otway Basin



Field outlines supplied by Encom Petroleum Information Pty Ltd. Field outlines in GPinfo are sourced from the operators of the fields only.
Outlines are updated at irregular intervals but with at least one major update per year.
The Coastal Waters shown on this map are indicative only.
A precise determination of the Coastal Waters will be determined at the time of issue and included in the permit boundary as a Metes and Bounds determination.

- *2009 GHG release area*
- *Existing petroleum title*
- *Gas field*
- *Gas pipeline*
- *Coastal waters limit*
- *200 Bathymetry contour (metres)*

Otway Basin

The Otway Basin is a large, broadly northwest-trending sedimentary basin encompassing onshore and offshore parts of South Australia and Victoria, and into Tasmanian waters. Water depths are shallow, typically less than 200 m depth. The Otway Basin comprises extensive seismic coverage, as well as good well distribution. Potential structural traps associated with tilted fault blocks and structural/stratigraphic traps in draping strata over deeper structures provide the potential for GHG storage.

Reservoir: Early Cretaceous Pretty Hill Formation; Waarre Formation and the Timboon Sandstone.
Seal: Intraformational shales including the Pember Mudstone, Flaxman Formation, as well as regional seals including the Belfast Mudstone, the Laira Formation and the Eumeralla Formation.
Trap: Multiple structural and sedimentary traps and migration dissolution/residual trapping.

Refer to Krassay et al., 2004 for stratigraphic information.

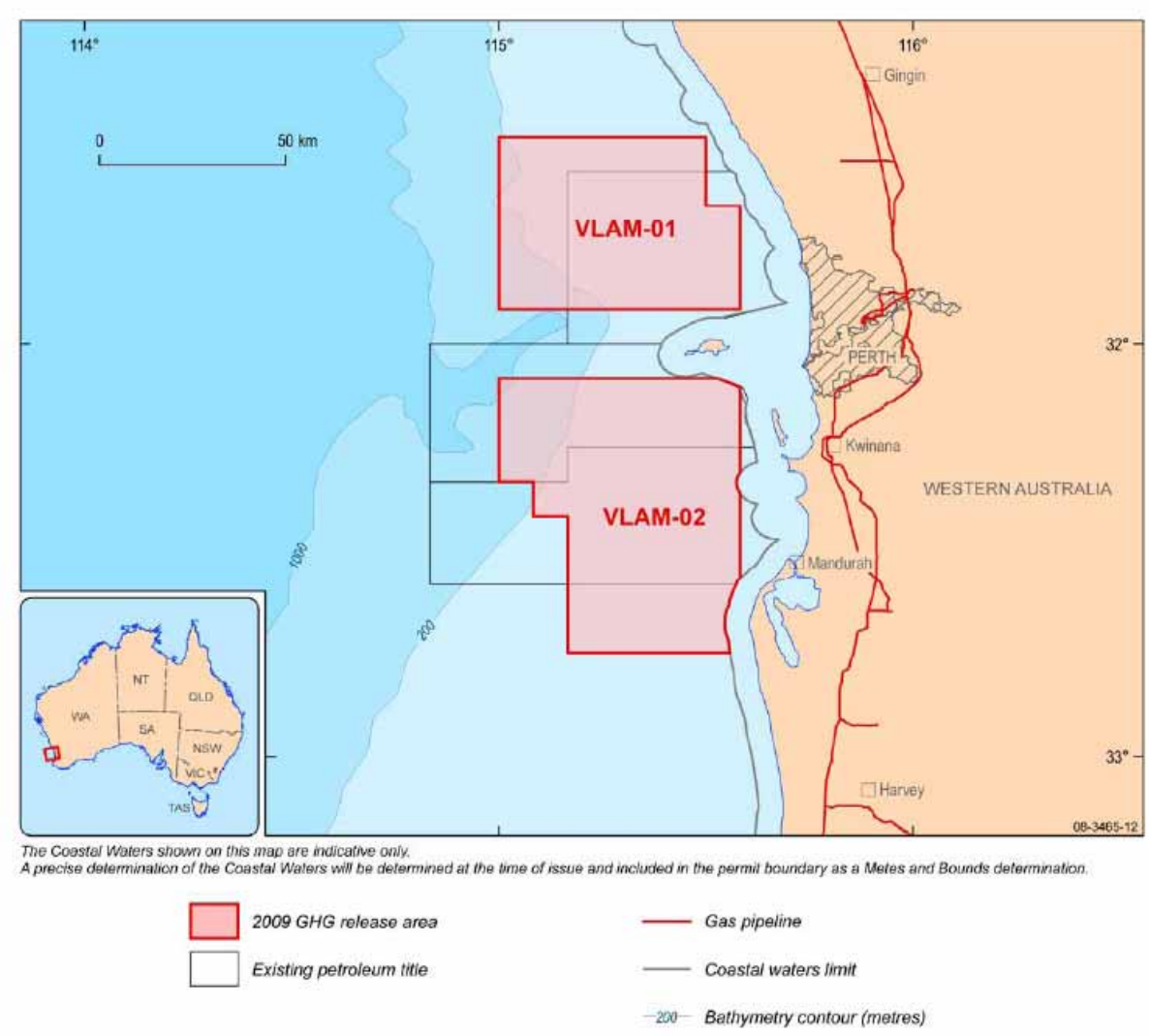
OTWY-01, Otway Basin

OTWY-01 is located along the north-western edge of the Otway Basin, about 10 to 85 km off the South Australian coast, and west of Robe. Release area OTWY-01 covers an area of approximately 4025 square kilometres and 65 graticular blocks, or parts thereof.

Overlapping Petroleum Exploration Permits

Release Areas	Overlapping Petroleum Titles	Title Holders of Petroleum Titles
OTWY-01	EPP34	Exoil Ltd (**Operator**); United Oil & Gas; Moby Oil & Gas Ltd; National Energy; National Gas Australia Ltd; Gascorp Australia Ltd
	EPP35	Exoil Ltd (**Operator**); Gascorp Australia Ltd; Moby Oil & Gas Ltd; National Energy Ltd;

Release areas VLAM-01 and VLAM-02: Vlaming Sub-Basin



Vlaming Sub-Basin

The Vlaming Sub-basin is a major Middle Jurassic–Early Cretaceous depocentre of the offshore Perth Basin, located along the south-western coast of Australia. Water depths range from approximately 20 to 200 m over much of the release areas. Close to existing Western Australian infrastructure, the sub-basin has extensive seismic coverage with moderate well distribution. The potential storage styles include fault bounded dry structures and stratigraphic traps within multiple stratigraphic levels, as well as, long distance dissolution/residual trapping in regional sand bodies.

Reservoir: Gage Sandstone, Charlotte Sandstone, Jervoise Sandstone and the upper part of the Yarragadee Formation.
Seal: Local, intra-formational seals including the South Perth Shale, Carnac Formation and Otorowiri Formation (Parmelia Group).
Trap: Multiple structural and stratigraphic traps and migration dissolution/residual trapping.

Refer to Causebrook et al., 2007 for stratigraphic information.

VLAM-01 AND VLAM-02, Vlaming Sub-basin, Perth Basin

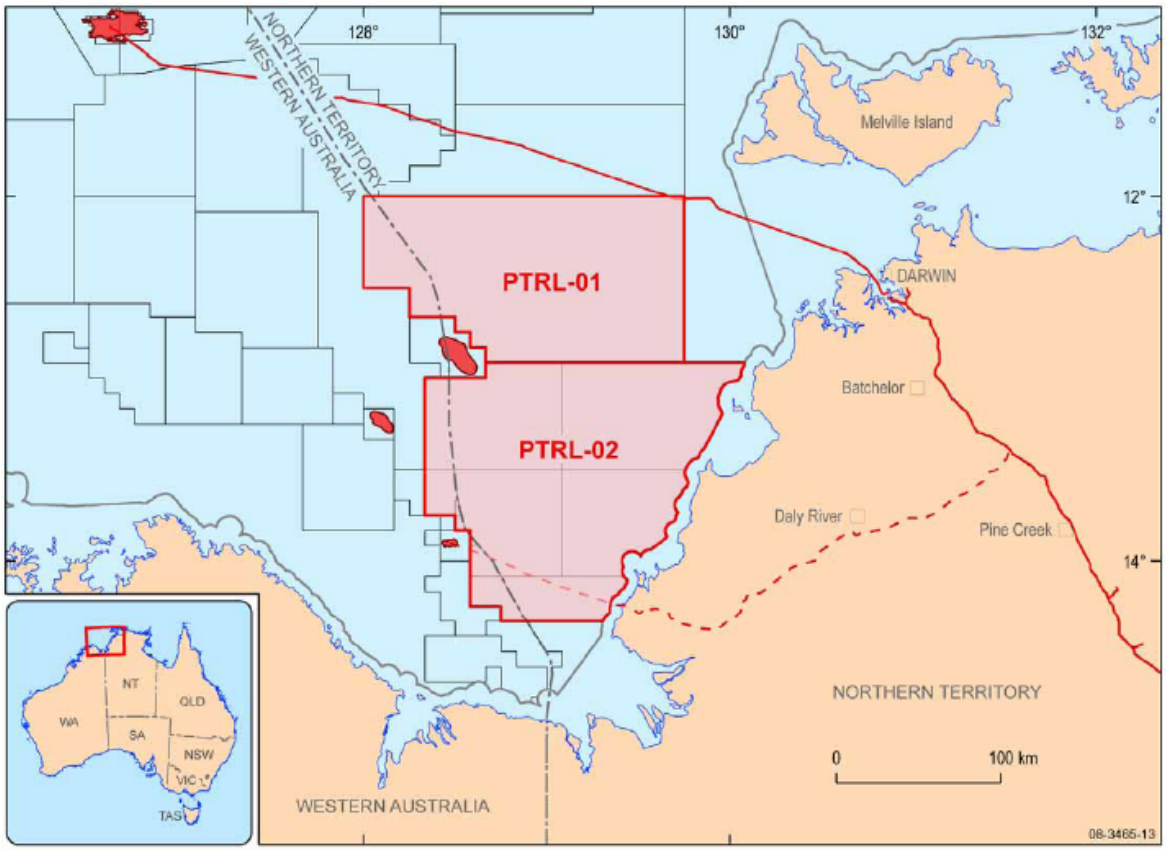
VLAM-01 and VLAM-02 are located in the central part of the Vlaming Sub-basin, between 6 km and 75 km offshore of Perth.

Release area VLAM-01 covers an area of about 2410 square kilometres and 33 graticular blocks. Release area VLAM-02 covers an area of approximately 3345 square kilometres and 47 graticular blocks, or parts thereof.

Overlapping Petroleum Exploration Permits

Release Area	Overlapping Petroleum Title	Operator of Petroleum Title
VLAM-01	WA-368-P	Nexus Energy Ltd (**Operato**r); Australian Worldwide Exploration Ltd
VLAM-02	WA-381-P	Roc Oil Company Ltd (**Operator**); Westralian Gas & Power Ltd; Cladium Ltd;
	WA-382-P	Roc Oil Company Ltd (**Operator**); Westralian Gas & Power Ltd; Cladium Ltd;

Release areas PTRL-01 and PTRL-02: Petrel Sub-Basin



Field outlines supplied by Encom Petroleum Information Pty Ltd. Field outlines in GPinfo are sourced from the operators of the fields only.
Outlines are updated at irregular intervals but with at least one major update per year.
The Coastal Waters shown on this map are indicative only.
A precise determination of the Coastal Waters will be determined at the time of issue and included in the permit boundary as a Metes and Bounds determination.

- *2009 GHG release area*
- *Existing petroleum title*
- *Gas field*
- *Gas pipeline*
- *Proposed gas pipeline*
- *Coastal waters limit*
- *Scheduled area boundary (OPGGSA 2006)*

Petrel Sub-Basin

The Petrel Sub-basin is a northwest-trending Paleozoic rift within the southern Bonaparte Basin, located offshore north-western Australia in the Joseph Bonaparte Gulf. Water depths are generally less than 100 m. The Petrel Sub-basin is an emerging hydrocarbon province with existing infrastructure in place. The release areas on the eastern side of the sub-basin are under-explored with limited well and seismic coverage. However, the areas are proximal to the gas discoveries with good well and seismic distribution.

Reservoir: Plover Formation of the Troughton Group and the Sandpiper Sandstone (Flamingo Group).
Seal: Frigate Formation of the Flamingo Group and Bathurst Island Group regional seals.
Trap: Faulted anticlines, stratigraphic traps, salt diapers, and migration dissolution/residual trapping.

Refer to Gibson-Poole et al., 2002 for stratigraphic information.

PTRL-01 AND PTRL-02, Petrel Sub-basin, Bonaparte Basin

PTRL-01 and PTRL-02 are located along the eastern margin of the sub-basin and are approximately 200 km west of Darwin within the Joseph Bonaparte Gulf. The western edge extends into Western Australia.

Release area PTRL-01 covers an area of approximately 17025 square kilometres and 204 graticular blocks. Release area PTRL-02 covers an area of approximately 21160 square kilometres and 270 graticular blocks, or parts thereof.

Overlapping Petroleum Exploration Permits

Release Areas	Overlapping Petroleum Titles	Title Holders of Petroleum Titles
PTRL-01*		
PTRL-02	NT/P66	Nexus Energy Ltd
	NT/P77	Essar Exploration and Production Ltd
	NT/P78	Essar Exploration and Production Ltd
	WA-279-P	ENI Australia Ltd
	WA-313-P	ENI Australia Ltd

* There are no overlapping petroleum titles over the release area PTRL-01. However, PTRL-01 overlaps petroleum blocks, NT 08-01, NT 08-02 and NT 08-03, which were released in the 2008 Petroleum Acreage Release process. Bids for these three petroleum blocks will close on 9 April 2009.

Appendix 2

GEOSCIENCE DATASETS

A number of major geoscientific datasets are available free or at nominal cost and include:

- government-generated geoscientific maps and datasets;
- company reports of previous exploration;
- open file exploration databases; and
- geographic information system (GIS) data.

Government geoscience maps and datasets

The Australian, State and Northern Territory (NT) Governments each have a range of highly developed datasets that are publicly available. These typically include petroleum occurrences, resources and geological features. An increasing amount of this data is available in digital formats. Details of the material available from each State and the NT can be obtained from the contacts listed in **Appendix 4**.

Geoscience Australia is the national geoscience research and geospatial information agency. It undertakes major studies designed to reduce exploration risk and promote the petroleum prospectivity of Australia through the provision of pre-competitive geoscience information. The agency has been carrying out this work since the early 1980s and has extensive databases, datasets and reports from many areas, particularly offshore. Well header data, biostratigraphy, two way time, depositional facies, porosity, permeability and organic geochemistry data can be obtained free of charge for most offshore wells. This data can be accessed and interrogated via a map-enabled internet interface with download capability (http://dbforms.ga.gov.au/www/npm.well.search). For more information and details of current projects, products and datasets see Geoscience Australia's website www.ga.gov.au

Mapping programs undertaken by Australian and State/NT geological surveys have generated a comprehensive geological and geophysical coverage of Australia. The continent is covered by geological maps at 1:250 000 scale and selected mineral provinces at more detailed scales (1:100 000, 1:50 000 and 1:25 000). Province and State/Territory-wide maps are available at scales from 1:500 000 to 1:2 million, and at 1:2.5 million and 1:5 million scale for the Australian continent.

Standard series maps are accompanied by reports or explanatory notes and recent maps are available in digital formats. Other map products, in the form of thematic maps and atlases, include mineral deposit, metallogenic, regolith landform and stream sediment geochemistry maps, and are available at a range of scales and formats, some suitable for use in GIS packages.

Most of the continent is covered by regional airborne magnetic and gamma-ray spectrometric surveys. As part of the Government’s new energy initiative, an Australia-wide airborne geophysical tie-line survey (AWAGS 2) is being flown. Collection of this new continent-wide radiometric and magnetics survey with a line spacing of 75 kilometres commenced in March 2007.

Gridded digital data are also available for the entire country, including some offshore regions, as well as standard 1:1 million sheet areas of 6 degrees by 4 degrees.

More than 6 million line km (covering 30% of the country) of high resolution airborne magnetic and gamma-ray spectrometric data are available in digital and image map formats.

A gravity database of Australia, with a nominal station spacing of 11 km, is available as gravity anomaly maps (at scales of 1:5 million, 1:1 million and 1:250 000) as well as a gridded (1.5 minute) gravity anomaly dataset. More detailed data, including new surveys at 2 to 4 km station spacing, conducted by Australian governments, are available for selected offshore and onshore provinces.

Geoscience Australia holds an extensive database of bathymetry from ship trackline soundings acquired since 1963 and swath bathymetry data acquired using modern techniques. A grid with a cell size of 250 m can be obtained from Geoscience Australia. The bathymetry grid has been used for research and analysis as a fundamental layer in geological, technical and environmental studies. The grid is not designed for use as a navigational aid or research into safety at sea, for which special products are prepared by the Royal Australian Navy Hydrographic Office.

The Australian Government's Spatial Data Access and Pricing Policy provides for free access to its on-line fundamental spatial data. Spatial data not available on-line is provided at the marginal cost of transfer. The policy also removes restrictions on commercial use or value-adding activities related to Australian Government spatial data.

The website of the Office of Spatial Data Management (http//www.osdm.gov.au) lists all data available under the terms of the policy and has online links to the spatial data custodian websites. The list of data available under the terms of the policy is constantly expanding.

Australian geological provinces database

The Australian Geological Provinces Database provides interpretive data on Australia's sedimentary, igneous, metallogenic, structural and metamorphic provinces. The database has been jointly developed and populated by the Onshore and Minerals Division of Geoscience Australia, which concentrates on onshore geological provinces, and the Petroleum and Marine Division which captures data for offshore sedimentary basins. Geoscience Australia works closely with State and Territory authorities and industry to provide the most up-to-date interpretations. The database provides the mapped extent of Australia's geological provinces, and includes attributes such as size, water depth, tectonic setting, age, sediment thickness, main rock types, depositional environments, main resources, key references, and relations to other geological provinces. It also includes an overview of the geology, exploration status, and petroleum system elements of each province.

The Australian Geological Provinces Database is available online. Access to the database is provided through the Geoscience Australia website using an interactive mapping system, at www.ga.gov.au/oracle/provinces/.

The interface allows users to view and select provinces of interest based on key attributes, and to add key map layers (exploration data, surface geology, images, bathymetry). Database extracts are provided as an html report, and include links to key images (structural element maps, regional cross-sections, stratigraphic and petroleum system charts).

This database interface provides explorers with basic geological information on all offshore sedimentary basins, and many of their component sub-basins, along Australia's continental margin.

Open file exploration database

Petroleum legislation in Australia generally requires companies to submit data and technical reports on their exploration activities as part of their obligations following the grant of an exploration or other title. Under Australia's offshore petroleum legislation, data resulting from exploration activities in Commonwealth offshore areas are made available after certain periods depending on the nature of the data, the title status of an area and whether data was acquired on a proprietary or non-exclusive basis. Basic data generally becomes available after a period of two to three years, ranging up to fifteen years for data from non-exclusive 3D seismic surveys. A five kilometre 2D grid extracted from 3D non-exclusive seismic surveys is publicly available after 5 years.

The bulk of data from operations on Australia's continental shelf, comprising seismic and well survey information and cores, cuttings and reports, is stored by Geoscience Australia at its Geology and Geophysics Data Repository, and in relevant State/NT repositories.

Geoscience Australia provides internet access to data through the Petroleum Information Management System (PIMS), http//www.ga.gov.au/oracle/npd/ which provides on line ordering for loan requests and interrogation of data holdings.

Australian Marine Spatial Information System

The Australian Marine Spatial Information System (AMSIS) is an on-line mapping and decision support tool that presents a vast array of Commonwealth interests in Australia's marine jurisdiction. With the cooperation of other Government and private sector agencies, this system integrates administrative boundary information including petroleum leases with scientific data against other background data such as bathymetry.

AMSIS is easy to use and provides access to data via a web browser for those interested in the marine environment without the need for specialised software or mapping skills. AMSIS not only displays 'what is out there', but also allows users to query the information, view metadata, and conduct more advanced functions such as return the nearest distance from a point to a nominated boundary.

AMSIS can be found on the web at http//www.ga.gov.au/amsis.

Appendix 3

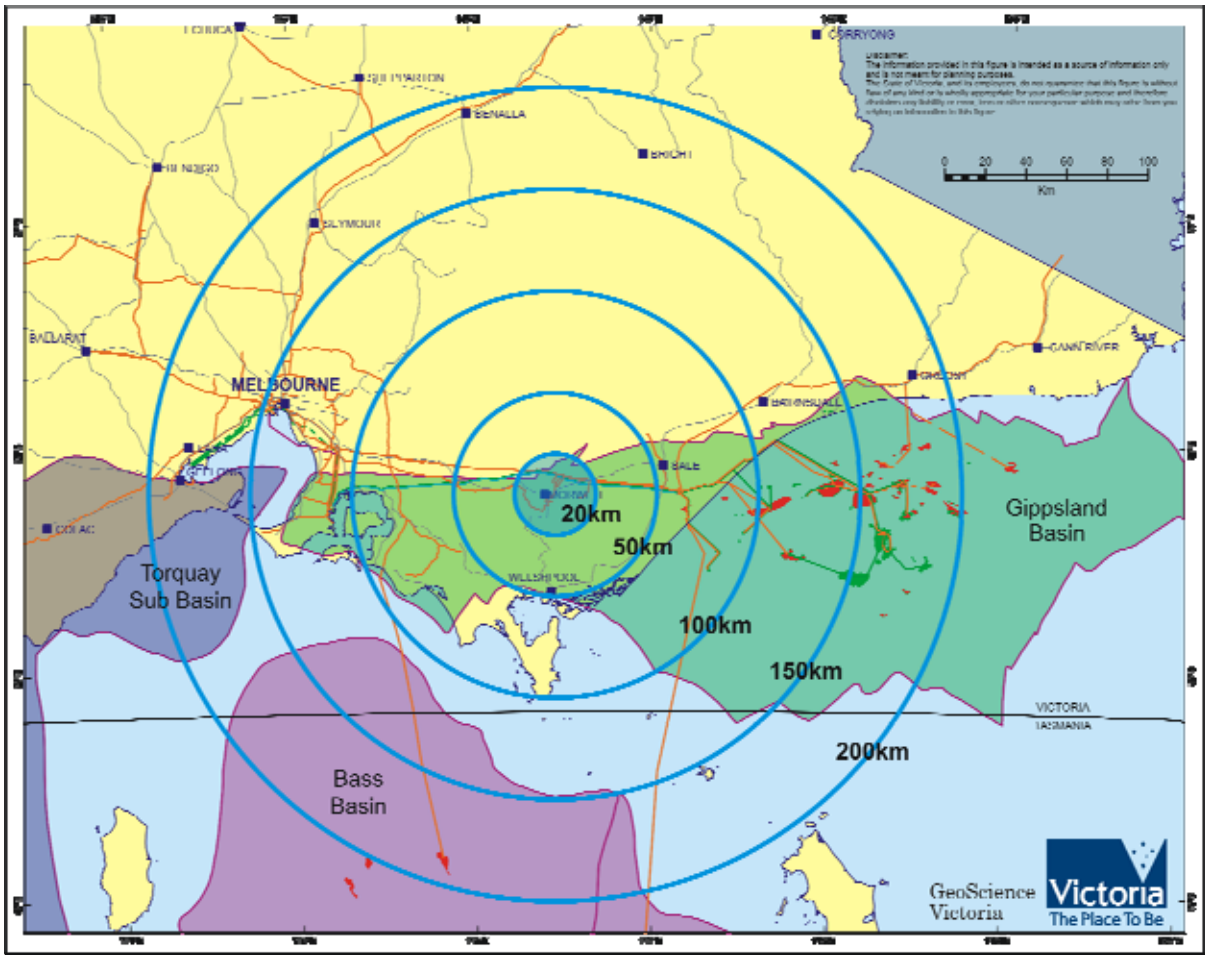
Carbon Capture and Storage Initiatives in Victoria

A world class location

With a unique concentration of vast brown coal deposits and carbon emissions sources (around 60MT of carbon emissions annually) from the stationary energy sector in the Latrobe Valley, three promising large scale offshore storage sinks within 200km, together with moderate onshore storage potential, Victoria is one of the world's most favourable locations for large scale CCS.
In geological terms, the Gippsland Basin in particular is widely recognised as one of the most promising storage sites globally. The Bass and Torquay Basins are also potential storage options.

Pre-competitive geological data on potential storage sites is available from GeoScience Victoria. The Victorian Government is also currently undertaking additional storage suitability assessments of the Gippsland Basin. The outcomes of this work will also be available through GeoScience Victoria when complete.

Figure 1: Distances to key offshore storage locations from the Latrobe Valley (Victoria)



Victoria's policy context – strong support

The Victorian Government is strongly committed to developing carbon capture and storage (CCS) in Victoria, with a view to a multi-user commercial scale foundation CCS network operating in Victoria.

A vision for a Victorian integrated CCS network – a partnering approach

The Victorian Government seeks to facilitate and support the establishment of a viable multi-user commercial scale CCS network which will:

- reduce carbon dioxide emissions from fossil fuels
- realise the value of Victoria's coal assets into the future
- attract new investment
- allow Victoria to maintain as an option low cost base load energy from brown coal into the future.

The Victorian Government is investing significantly in CCS research and technology development, to accelerate the development of promising technologies through the research, development, piloting and demonstration phases to commercial deployment. This includes around $100 million for large scale CCS demonstration projects, under the State's Energy Technology Innovation Strategy program, with proposals for projects due in August this year.

Energy Technology Innovation Strategy

The Energy Technology Innovation Strategy (ETIS) is part of a broader Victorian government approach to the reduction of CO_2 emissions from the stationary power industry and other sources.

The primary objective of ETIS is to drive energy and related greenhouse reduction technologies down their respective cost curves so they are available for implementation when they are needed. In pursuing this objective ETIS funds a portfolio of technologies across the RDD&D spectrum.

Funding R&D has two principal outcomes:

- new technologies; and
- a growing pool of trained professionals.

Funding the demonstration phase of the RDD&D continuum provides bankable technologies when the market calls for them.

To date, the Victorian Government has allocated over $370 million to ETIS in two stages. Under ETIS1 (funded in 2005-06) the following commitments were made:

Large scale demonstration projects:

- HRL IDGCC $50 million
- Hazelwood 2030 (coal drying and carbon capture) $30 million
- Solar systems (154MW photovoltaic concentrator) $50 million

Other:

- Centre for Energy and Greenhouse Technologies $29.5 million
- Brown coal R&D program $12 million
- Sustainable energy R&D program (SERD1) $10 million
- Otway Basin geosequestration trial $4 million.

ETIS2 (funded 2008-09) comprises:

- Carbon capture and storage large scale demonstration projects (CCSLSDPs); and
- Sustainable energy large scale demonstration projects (SELSDPs)

Both RFPs are now in the market and will close on 31 August 2009.

Appendix 4

Key sector contacts - State and Territory Mines Departments

Geoscience Australia Chief Petroleum and Marine Division Geoscience Australia GPO Box 378 CANBERRA ACT 2601 AUSTRALIA Telephone: + 61 2 6249 9447 Facsimile: +61 2 6249 9933 Web Page: www.ga.gov.au	**Victoria** Director Minerals & Petroleum Regulation Department of Primary Industries (PO Box 4440, MELBOURNE VIC 3000) Level 16, 1 Spring Street MELBOURNE VIC 3000 AUSTRALIA Telephone: +61 3 9658 4600 Facsimile: +61 3 9658 4460 Web Page: www.dpi.vic.gov.au
Queensland General Manager, Policy and Resource Strategy Bureau of Mining and Petroleum Department of Mines and Energy GPO Box 2454, BRISBANE QLD 4001 Level 3, Mineral House, 41 George Street BRISBANE QLD 4000 AUSTRALIA Telephone: +61 7 3237 1582 Facsimile: +61 7 3237 0470 E-mail: geological_info@nrm.qld.gov.au Web Page: www.dme.qld.gov.au	**Western Australia** Executive Director Petroleum and Environment Division Department of Mines and Petroleum Mineral House, 100 Plain Street EAST PERTH WA 6004 AUSTRALIA Telephone: +61 8 9222 3291 Facsimile: +61 8 9222 3799 Web Page: www.dmp.wa.gov.au
South Australia Director Petroleum and Geothermal Group Department of Primary Industries and Resources (GPO Box 1671, ADELAIDE SA 5001) Level 6, 101 Grenfell Street ADELAIDE SA 5000 AUSTRALIA Telephone: +61 8 8463 3204 Facsimile: +61 8 8463 3299 Web Page: www.pir.sa.gov.au	**Tasmania** Executive Director, Mineral Resources Mineral Resources Tasmania (PO Box 56, ROSNY PARK TAS 7018) 30 Gordons Hill Road ROSNY PARK TAS 7018 AUSTRALIA Telephone: +61 3 6233 8377 Facsimile: +61 3 6233 8338 E-mail: info@mrt.tas.gov.au Web Page: www.mrt.tas.gov.au
Northern Territory Director of Energy Department of Regional Development, Primary Industry, Fisheries, and Resources (GPO Box 3000, DARWIN NT 0801) Level 5, Centrepoint Building 48-50 Smith Street Mall DARWIN NT 0800 AUSTRALIA Telephone: +61 8 8999 5293 Facsimile: +61 8 8999 6527 **Web Page:** www.nt.gov.au/dpifm	**New South Wales** Director Minerals Development Department of Primary Industries - Mineral Resources (PO Box 344, Hunter Region Mail Centre NSW 2310) 516 High Street MAITLAND NSW 2320 AUSTRALIA Telephone: +61 2 4931 6666 Facsimile: +61 2 4931 6790 Web Page: www.minerals.nsw.gov.au