Approval

To develop, construct, operate and decommission coal seam gas resources in the Surat and Bowen Basins between Roma and Emerald in Queensland to supply gas for a related proposal for a natural gas liquefaction and export facility near Gladstone as described in referral EPBC No 2008/4059.

This decision is made under sections 130(1) and 133 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

person to whom the approval is granted	Santos Ltd
proponent's ACN (if applicable)	80 007 550 923
proposed action	To develop, construct, operate and decommission coal seam gas (CSG) resources in the Surat and Bowen Basins between Roma and Emerald in Queensland to supply gas for a related proposal for a natural gas (LNG) liquefaction and export facility (LNG facility) near Gladstone: • as described in the proponent's referral received under the EPBC Act on 13 March 2008; and • as described by the proponent's Environmental Impact Statement and Supplementary Environmental Impact Statement; and • as varied on 5 August 2009 and 3 September 2010.
decision	To approve the proposed action for each of the following controlling provisions: • Listed threatened species and communities (sections 18 and 18A, EPBC Act) • Listed migratory species (sections 20 and 20A, EPBC Act)
conditions of approval	This approval is subject to the conditions specified below.
expiry date of approval	This approval has effect until 31 October 2060.
name and position	The Hon Tony Burke MP Minister for Sustainability, Environment, Water, Population and Communities
signature	Tony Burke
date of decision	22.10.10

Conditions

Project area

1. The project area is the area illustrated in Figure 1, with the maximum gas field development area within petroleum tenures of 6,887 km2, being limited to the Santos GLNG Coal Seam Gas Field *Reasonable Foreseeable Development Area* (RFDA) within the following petroleum tenures (as they are at the date of the decision to which these conditions are attached):

   Petroleum leases
   - PLs 232-236 (Fairview)
   - PLs 90-92 & 99-100 (Fairview)
   - PLs 3-9 (Roma), 13 (Roma), 93 (Roma), 309 (previously PLA 250)[3], 310 (previously PLA 251)[1, 3], 281[1, 2], 282[1, 2]

   [1] Under Application; [2] Previously Part of ATP 631P, [3] Previously part of ATP 336P

   Authorities to prospect
   - ATPs 526P & 653P (Fairview)
   - ATPs 526P & 653P (Fairview)
   - ATP 336 [Part] (Roma)

   Pipeline licences
   - PPLs 76 & 92 (Fairview)

Infrastructure limits

2. Impacts must be limited to a maximum of 2,650 production wells and impacts related to associated gas field development.

Constraints Planning and Field Development

Protocol for Constraints Planning and Field Development

3. Before the commencement of gas field development, the proponent must develop a Constraints Planning and Field Development Protocol (the Protocol).

4. The Protocol must include and apply for the life of the project and include the principles of:

   a) avoiding direct and indirect adverse impacts on MNES;

   b) mitigating and managing direct and indirect impacts to minimise cumulative adverse impacts on MNES;

   c) active site remediation and rehabilitation of impacted areas to promote and maintain long-term recovery of MNES.

5. The Protocol must:

   a) Classify the following as being within the proponent's high environmental constraint class B (or should the proponent's classification be revised, an equivalent high environmental constraints class):

i) all listed threatened ecological communities;

ii) all listed flora species; and

iii) those listed threatened and migratory fauna species habitats as identified in management plans required under these conditions, which where relevant may be described in terms of specific niche habitat types;

Note: The proponent's approach to environmental constraint class B and related avoidance and impact mitigation is described in SEIS Attachment D5 (dated November 2009). The protocol conditions do not apply to the other constraints that the proponent has included in environmental constraint class B unless these are relevant to MNES.

b) take into account all current survey data and available information and maps of all MNES relevant to the project area as described within environmental constraint class B;

c) require the undertaking and documentation of planning and pre-clearance site assessments and field ecological surveys in proposed gas field development areas where constraint class B is mapped, likely or found. The pre-clearance site assessments and field ecological surveys must identify and assess options relating to potential gas field development adverse impacts on MNES and provide recommendations to inform the proponent's decision to develop the project area;

d) to avoid direct and indirect adverse impacts on MNES, including fragmentation and edge effects, require the proponent to determine the location of proposed infrastructure in accordance with the following:

i) preferentially avoid native vegetation that constitutes a listed ecological community and/or may provide habitat for listed species and utilise previously cleared or previously utilised areas;

ii) exclude exploration and production wells from within areas identified as environmental constraint class B unless their location in environmental constraints class B is justified as an exception given other constraints and the impact on any MNES will be minimal, short term, and recoverable; and

Note: Directional drilling and multiple drill holes from one well pad are options to avoid well site and related infrastructure disturbance to environmental constraint class B.

iii) either:

(1) exclude other <u>non linear</u> infrastructure from the no impact zone; or

(2) where the location of other <u>non linear</u> infrastructure in the no impact zone cannot be avoided, only authorise the siting of that infrastructure in that zone where field ecological surveys demonstrate that there will be minimal, short term, and recoverable, or <u>no</u> adverse impact on any MNES, including habitat for any listed species; and

iv) either:

(1) exclude <u>linear</u> infrastructure from the impact risk zone; or

(2) where the location of linear infrastructure in the impact risk zone is justified given other constraints and cannot be avoided, only authorise the siting of that infrastructure in that zone where field ecological surveys demonstrate that there will be <u>minimal</u> adverse impact on any MNES, including habitat for any listed species;

Note: Justification is reportable in accordance with condition 13 a) vii). The management plan requirements under condition 8 h) may also indicate that a species or its habitat can co-exist with specific types of gas field infrastructure and operations.

e) require the proponent to plan for and decide the extent that proposed linear infrastructure may have an adverse impact on MNES in accordance with the following:

i) all linear disturbance within environmental constraint class B for MNES and the impact risk zone must be in accordance with the limits specified in Table 1 and Table 2 and condition 5e) ii):

Table 1: Gathering pipeline network corridor widths (right of way)

Pipeline Number (based on 2 pipelines per trench and provision for an access track)	Maximum width (m) (without power provision)	Maximum width (m) (with power provision)
2	9.5	19.5
4	14	24
6	18.5	28.5
8	23	33

Note: These widths include a 3m offset from the road and provision of 5m spacing from the edge of trench to the edge of clearing to allow for stockpiling trenching spoil, topsoil and cleared vegetation. * Based on Santos' documented specifications.

Table 2: Road and co-located infrastructure corridor widths (right of way)

Road Class	Power Provision (m)	Road Width (m)	Road / Pipeline separation (m)	Pipeline Provision (m)	Maximum total corridor width (m)
C* (single)	10	11	3	6	30

Note: Table 2 relates to formed roads other than tracks. * Based on Santos' classification for roads within the gas fields.

Trunk lines and co-located linear infrastructure widths (right of way)

ii) gas and water trunkline rights of way, water distribution pipeline rights of way, and other major linear infrastructure disturbance corridors within environmental constraint class B and the impact risk zone must be:

(1) limited to 30 m in width where there are one or two gas and water trunklines, underground 33kV power lines and fibre optic cables in parallel;

(2) limited to 30 metres plus an additional 4 metres for every additional gas or water trunkline in parallel with the initial one or two gas or water trunklines, power lines and fibre optic cable.

iii) where feasible, gas trunklines, pipelines for associated water and other transmission lines must be co-located to reduce total disturbance on MNES.

Note: Any area of a disturbance referred to in this condition would be subtracted from the disturbance limits specified elsewhere in these conditions;

f) support bioregional corridors for listed threatened species and migratory species, and connectivity for listed threatened ecological communities;

g) ensure site assessments and field ecological surveys:

   i) are undertaken in accordance with the Department's survey guidelines in effect at the time of the survey. This information can be obtained from http://www.environment.gov.au/epbc/guidelines-policies.html#threatened;

   ii) take account into and reference previous ecological surveys undertaken in the area and relevant new information on likely presence or absence of MNES;

   iii) are undertaken by a suitably qualified ecologist approved by the Department;

   iv) document the survey methodology, results and significant findings in relation to MNES;

   v) apply best practice site assessment and ecological survey methods appropriate for each listed threatened species, migratory species, their habitat and listed ecological communities;

   Note: Best practice includes applying the optimum timing and frequency of site assessments and surveys to determine presence or absence of listed threatened species or migratory species or their habitat, or a listed threatened ecological community.

   vi) apply the mapping of environmental constraints class B; the infrastructure location requirements; minimum *no impact zones*; *impact risk zones*; and the width requirements for linear infrastructure corridors described in e); and

   vii) reports are published by the proponent on the Internet 20 business days before clearance of native vegetation in an infrastructure impact area and provided to the Department on request;

h) require species and ecological community management plans which include:

   i) relevant avoidance and mitigation measures to be applied;

   ii) measures for protecting each listed threatened species and migratory species and their habitat, and each listed threatened ecological community not previously assessed by the proponent, should one or more be found in the project area at any time over the life of the project. Any such management plans must be developed in a timeframe to be approved by the Department. Notification of additional MNES found must be provided to the Department in writing within 10 business days. Measures must include the development of a management plan consistent with requirements under condition 8.

i) the proponent must ensure constraints planning and field development decisions are made in accordance with the Protocol (including any relevant species and ecological community management plans) before final selection of specific sites for gas field development within the project area.

6. The Protocol must ensure relevant information on MNES is available and used by the proponent to support field development and management decisions throughout the life of the project.

Management plans for listed species and ecological communities

7. Before commencement of each major stage of gas field development the proponent must develop management plans for that area addressing each listed species and listed ecological community that, as indicated through assessment or more recent information, may be potentially impacted by gas field development within the project area (defined by condition 1), or external to the project area as a result of gas field development.

   Note 1: The proponent may develop management plans to align with the requirements of the Queensland Government where there are species and ecological communities covered by both Queensland requirements and the requirements of this approval.

   Note 2: Major stages of development are to be notified under condition 88.

8. Management plans required under condition 7 must be developed by a qualified ecologist approved in writing by the Department and at least address those listed ecological communities in Table 3 and those listed species in Table 4 of these conditions. As a minimum each plan must address the following as is relevant to each MNES:

   a) current legal status (under EPBC Act);

   b) known distribution;

   c) known species' populations and their relationships within the region;

   d) extent of ecological community fragmentation within the region and if appropriate minimum patch size for that community

   e) to support field identification and ecological surveys, description of the relevant characteristics of the ecological community;

   f) species' biology and reproduction and description of general habitat;

   g) to support field identification and ecological surveys, description of the species' habitat, which may be described in terms of essential habitat, and microhabitat including associations with geology, soils, landscape features and associations with other native fauna and/or flora or ecological communities, and where relevant specific niche habitat descriptions that can be meaningfully applied in constraints planning and used in field ecological surveys;

      Note: Constraints mapping may be limited by available data for many species and may therefore be inadequate to map habitat requirements for planning and management purposes, or to indicate presence without on ground assessment. Condition 8 g) requires the essential components of a species' habitat to be described where relevant to support field identification and environmental constraints decision making. This should include essential habitat components for widely distributed species present in low numbers and for other species likely to be present but not often observed.

   h) threats to MNES relating to the development and management of land within the gas fields including from the development, operation and decommissioning of infrastructure within the gas fields; and from groundwater extraction and aquifer depressurisation, CSG water use and disposal, whether the threat is within or outside the gas field development area;

      Note: This part of a management plan may also indicate that a species or its habitat can co-exist with specific types of gas field operations.

   i) relevant management practices and methods to minimise impact and recover from impact that should include:

i) site rehabilitation timeframes, standards and methods;

ii) use of sequential clearing to direct fauna away from an impact zone;

iii) re-establishment of native vegetation in linear infrastructure corridors;

iv) welfare and safe handling of fauna specimens requiring relocation from impact sites;

v) handling practices for flora specimens;

vi) translocation practices and monitoring for translocation success;

vii) monitoring methods including for rehabilitation success and recovery;

j) surface and ground water quality and quantity requirements, including relevant downstream environmental quality parameters;

k) reference relevant conservation advice, recovery plans, or other policies, practices, standards or guidelines relevant to MNES published or approved from time to time by the Department or the Minister.

Note 1: The management plans must include sufficient detail to inform field development decisions, ongoing management and decommissioning to minimise adverse impacts on MNES through the life of the project.

Note 2: To the extent that the requirements of condition 8 are satisfied for each species, a single plan may be prepared to address a group of species which have similar ecological characteristics and habitat needs. Other conditions also require species or ecological community management plans to be developed in certain circumstances in accordance with condition 8.

9. Each species and ecological community management plan must be submitted for the approval of the Minister. Commencement of each major stage of gas field development within the project area must not occur without written approval of each plan for each listed species and ecological community within the proposed area of development. The proponent may undertake activities that are critical to commencement that are associated with mobilisation of plant and equipment, materials, machinery and personnel prior to the start of development only if such activities will have no adverse impact on MNES, and only if the proponent has notified the Department in writing before an activity is undertaken. Approved species and ecological community management plans must be implemented.

10. The proponent must establish a program for routine review of the species and ecological community management plans to be undertaken by a qualified ecologist approved by the Department (with other experts as appropriate) to take into account any new information available to the proponent, including any information and advice provided by Commonwealth or Queensland Government agencies, or available from other CSG proponents.

11. The Minister may require through a request in writing the periodic review of the species and ecological community management plans either by the Department; or alternatively by an independent qualified ecologist, or other experts, approved by the Department. Plans must be approved by the Department in writing.

12. Independent review of plans will be at the financial expense of the proponent. Once independently reviewed, plans must be submitted for written approval by the Department. Approved plans must be implemented.

Record of impacts

13. If an impact (which may include a presumed impact where the species is presumed to be present) occurs to a MNES during gas field development, operation, or decommissioning the proponent must:

    a) record the impact by reference to:

        i) the location, specific site and type of infrastructure or activity;

        ii) each MNES subject to disturbance;

        iii) the related site assessment or field ecological survey documentation and recommendations, or the decision that the particular MNES was presumed to be present;

        iv) the disturbance limit set under condition 25;

        v) the total area of actual disturbance;

        vi) the remaining disturbance limit for each affected MNES;

        vii) the reasons for the decision including justification for the action taken, description of the efforts taken to avoid impact, and explanation why other constraints might justify the adverse impact on MNES;

        viii) actions and commitments by the proponent to remediate, rehabilitate, or make good any unauthorised disturbance; and

        Note: This condition applies to any adverse impact on MNES, whether or not a disturbance limit has been set, and whether or not the impact has been decided by the proponent under the Protocol based on other physical constraints.

    b) record the information to a standard which can be independently audited.

Site remediation, rehabilitation and recovery plan

14. Where a direct or indirect impact has occurred to MNES (which may include a presumed impact where the species is presumed to be present) the proponent must under the Protocol apply remediation, rehabilitation and recovery measures appropriate for each MNES to restore connectivity or rehabilitate disturbed areas to pre-clearance quality or better, and to minimise cumulative impacts throughout the life of the project.

15. Before commencement of gas field development the proponent must develop a Remediation, Rehabilitation, Recovery and Monitoring Plan. The Plan must:

    a) include site remediation measures including timeframes and standards for preventing erosion and stabilising disturbed soil in impact areas;

    b) include measures to support recovery of listed species' habitat and recovery of listed ecological communities affected by gas field development;

    c) include responses to threats to MNES from the proponent's operational activities and land management activities including the disposal and use of associated water, damage by livestock, and impacts from feral animals and weeds;

d) provide for fire prevention and management regimes during construction, operation, and decommissioning to protected MNES;

e) include performance measures and related monitoring to assess site remediation, rehabilitation and recovery;

f) provide for reporting on the implementation of the Remediation, Rehabilitation, Recovery and Monitoring Plan including monitoring and performance to a standard which can be independently audited;

g) reference relevant conservation advice, recovery plans, species management plans, or policies, practices, standards or guidelines endorsed or approved from time to time by the Department.

Note: The proponent may develop the plan to satisfy the requirements of both the Queensland Government and these conditions as indicated in condition 98 b).

16. The Remediation, Rehabilitation, Recovery and Monitoring Plan must be submitted for the approval of the Minister. Commencement of gas field development must not occur without written approval of this Plan. The proponent may undertake activities that are critical to commencement that are associated with mobilisation of plant and equipment, materials, machinery and personnel prior to the start of development only if such activities will have no adverse impact on MNES, and only if the proponent has notified the Department in writing before an activity is undertaken. The approved Remediation, Rehabilitation, Recovery and Monitoring Plan must be implemented.

17. The proponent must establish a program to routinely review the Remediation, Rehabilitation, Recovery and Monitoring Plan by an independent qualified ecologist, or other experts, approved by the Department to take into account any new information available to the proponent, including any information and advice provided by Commonwealth or Queensland Government agencies, or available from other CSG proponents.

18. The Minister may require through a request in writing the periodic review of the Remediation, Rehabilitation, Recovery and Monitoring Plan by the Department; or alternatively by independent qualified ecologist, or other experts, approved by the Department. Plans must be approved by the Department in writing.

19. Independent review of plans will be at the financial expense of the proponent. Once independently reviewed, plans must be submitted for written approval by the Department. Approved plans must be implemented.

Approval and Review of Protocol

20. The Protocol must be submitted for the approval of the Minister. Commencement of gas field development must not occur without written approval of the Protocol. The proponent may undertake activities that are critical to commencement that are associated with mobilisation of plant and equipment, materials, machinery and personnel prior to the start of development only if such activities will have no adverse impact on MNES, and only if the proponent has notified the Department

in writing before an activity is undertaken. The approved Protocol must be implemented.

Note: The review required following completion of the *Cumulative Impact Assessment Report* required by the Queensland Government may be done after approval of the Protocol The Department may seek review of the Protocol to align with Queensland Government requirements to support efficiency and avoid duplication.

21. The proponent's review of the Protocol must take into account all relevant studies, policies, standards, guidelines and advice relating to CSG activity published or provided to the proponent by the Commonwealth or Queensland governments, or published or provided by other proponents undertaking similar activities, or published or provided by other parties, including any findings of an audit against conditions, or plans or other documentation required under the conditions of this approval.

22. The Protocol and related plans must be reviewed and updated by the proponent: to take into account the findings of the *Cumulative Impact Assessment Report* required by the Queensland Government; before each major stage of the proponent's gas field development; or following a written request from the Department; or following a written request from the Department. Reviewed and updated Protocols and plans must be submitted for the Minister's written approval. Once approved, updated Protocols and plans must be implemented.

23. The Department may require through a request that the Protocol and related plans be revised or amended before approval. Any such request must be acted on within the time frame specified.

24. The approved Protocol must be incorporated into the proponent's management procedures, operational plans and other relevant documentation and kept current for the life of the project.

Disturbance limits

25. The following maximum disturbance limits in Table 3 and Table 4 below apply to authorised unavoidable adverse impacts on MNES as a result of exploration, development, operation and decommissioning of the CSG fields within the project area illustrated in Figure 1, and external to it, ('whole of project' disturbance limits) as a result of all associated gas field activities for the life of the project.

Table 3: Disturbance limits for listed threatened ecological communities

Ecological community	EPBC Act status	Disturbance limit (ha)
Brigalow (*Acacia harpophylla* dominant and co-dominant)	Endangered	19.6 ha

Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions	Endangered	0.8 ha
Natural Grasslands of the Queensland Central Highlands and the northern Fitzroy Basin	Endangered	5.2 ha
The community of native species dependent on natural discharge of groundwater from the Great Artesian Basin	Endangered	0 (No disturbance authorised).

Note: Table 3 is derived from the Queensland Santos Coordinator-General Report, Appendix 2, Condition 16 - Gas field Disturbance Limit; and Santos EIS and listed in Table 3.3 – 4 of the *Ecofund Offset Package Report* of 28 May 2010).

Table 4: Disturbance limits for listed species

Species	EPBC Act status	Disturbance limit (ha)	Indicative habitat
Dasyurus hallucatus (Northern Quoll)	Endangered	100.1 ha of habitat type	Habitat generally encompasses some form of rocky area for denning purposes with surrounding vegetated habitats used for foraging and dispersal. Preferred habitat of rocky hills and escarpments, open forest and open woodland.
Chalinolobus dwyeri (Large-eared Pied Bat, Large Pied Bat)	Vulnerable	108.1 ha of habitat type	Usually found in proximity to cliff lines and escarpments and sandstone outcrops where shallow caves appear to be used as roosts, although the species is also known to use tree hollows. Known to forage in adjoining woodlands including Brigalow ecological communities.
Turnix melanogaster (Black-breasted Button-quail)	Vulnerable	0.1 ha of habitat type	Drier low closed forests, particularly semi-evergreen vine thicket, low microphyll vine forest, araucarian microphyll vine forest and araucarian notophyll vine Forest.
Erythrotriorchis radiatus (Red Goshawk)	Vulnerable	139.4 ha of habitat type	Eucalypt woodland, open forest, gallery rainforest, swamp sclerophyll forest and rainforest margins, usually in association with large tracts of forest. Prefers a mosaic of vegetation types and permanent water.

Rostratula australis (Australian Painted Snipe)	Vulnerable	11.2 ha of habitat type	Potentially any wetland and farm dams with suitable vegetation cover, temporary and permanent lakes, swamps and claypans.. Favours freshwater swamps and samphire salt marshes.
Paradelma orientalis (Brigalow Scaly-foot)	Vulnerable	205.3 ha of habitat type	Occurs in a wide range of (dry) forest and woodland habitats, including Brigalow woodland. Vine thicket regrowth and rocky habitats on sandstone ridges to flats and gently undulating plains with clay, loam or sand. Not tolerant of clearings. Specific habitat where species found includes remnant Brigalow woodland with sparse tussock grasses on grey cracking clay soils.
Delma torquata (Collared Delma)	Vulnerable	41.6 ha of habitat type	Eucalypt or acacia dominated woodland including Brigalow ecological communities and open forest where it is associated with suitable microhabitats (exposed rocky outcrops or a sparse understorey of tussock grass, shrubs or semi-evergreen vine thickets).
Geophaps scripta scripta (Squatter Pigeon (Southern))	Vulnerable	199.2 ha of habitat type	Grassy woodlands and open forest that are dominated by eucalypts, open grassy pastures in association with cattle grazing marshes, acacia growth and disturbed habitats (i.e. around stockyards, along roads and railways, and around settlements.
Denisonia maculata (Ornamental Snake)	Vulnerable	44.0 ha of habitat type	Brigalow (*Acacia harpophylla*) woodland growing on clay cracking clay soils and sandy soils, riverside woodland and open forest growing on natural levees and other riparian habitats. Shelters under fallen timber and in soil cracks. Known from cleared grazing and cropping lands where suitable soils exist.
Egernia rugosa (Yakka Skink)	Vulnerable	119.9 ha of habitat type	Open dry sclerophyll forest or woodland, Brigalow, shrublands, lancewood forests on sandy and open textured soils.

			Dense ground cover, cavities in soil-bound root systems of fallen trees and beneath rocks, hollow logs and animal burrows are considered to provide suitable microhabitat for this species.
Furina dunmalli (Dunmall's Snake)	Vulnerable	205.3 ha of habitat type	Brigalow (*Acacia harpophylla*) forest and woodland growing on cracking black clay and clay loam soils (usually on heavy clay soils). Also known to occur in eucalypt and callitris woodland with fallen timber and ground litter.
Nyctophilus timoriensis (Eastern Long-eared Bat)	Vulnerable	275.4 of habitat type	River red gum forest, semi-arid woodlands, savannahs and open woodlands, often in association with riverine environments in Brigalow Belt of inland Queensland.

Note 1: Table 4 is derived with information from the Queensland Santos Coordinator-General's Report, Appendix 2, condition 16 - Gas field Disturbance Limit; and Santos EIS and listed in *Table 3.3 – 4* of the *Ecofund Offset Package Report* of 28 May 2010 and from the listed threatened species profiles available on the Department's website.

Note 2: Habitat for species in Table 4 will be described in the management plan for each species as required under condition 8. The habitat described in Table 4 is general and indicative only.

Offsets

Plan to secure offsets

26. Within 6 months of the commencement of the action the proponent must prepare an Offset Plan to provide an offset area for the approved disturbance limits relating to MNES within the project area. The offset area must secure an area of private land which includes at least:

    a) 6.4 ha of Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions;

    b) 41.6 ha of Natural Grasslands of the Queensland Central Highlands and the northern Fitzroy Basin;

    c) 800.8 ha of potential *Dasyurus hallucatus* (Northern Quoll) habitat which includes micro habitat required for the species;

    d) 864.8 ha of *Chalinolobus dwyeri* (Large-eared Pied Bat, Large Pied Bat) habitat which includes micro habitat required for the species;

    e) 0.8 ha of *Turnix melanogaster* (Black-breasted Button-quail) habitat which includes micro habitat required for the species;

    f) 1115.2 ha of *Erythrotriorchis radiatus* (Red Goshawk) habitat which includes micro habitat required for the species;

    g) 89.6 ha of *Rostratula australis* (Australian Painted Snipe) habitat which includes micro habitat required for the species;

h) 205.3 ha of *Paradelma orientalis* (Brigalow Scaly-foot) habitat which includes micro habitat required for the species;

i) 41.6 ha of *Delma torquata* (Collared Delma) habitat which includes micro habitat required for the species;

j) 1593.6 ha of *Geophaps scripta scripta* (Squatter Pigeon (Southern)) habitat which includes micro habitat required for the species;

k) 44 ha of *Denisonia maculata* (Ornamental Snake) habitat which includes micro habitat required for the species;

l) 119.9 ha of *Egernia rugosa* (Yakka Skink) habitat which includes micro habitat required for the species;

m) 205.3 ha of *Furina dunmalli* (Dunmall's Snake) habitat which includes micro habitat required for the species;

n) 2203.2 ha of *Nyctophilus timoriensis* (Eastern Long-eared Bat) habitat which includes micro habitat required for the species;

o) 196 ha of Brigalow with representation of the following;

   i) 30% remnant Brigalow (*Acacia harpophylla* dominant and co-dominant); and

   ii) 70% which is a combination of:

      (1) high value regrowth Brigalow; and

      (2) other Brigalow regrowth with potential for management to remnant Brigalow status.

Note: Offsetting requirements for some species' habitat may be accommodated within the Brigalow components if this habitat is verified as present and includes specific habitat requirements for each relevant species.

27. The Offset Plan must include details of the offset area including: the timing and arrangements for securing properties, maps and site description, environmental values relevant to MNES, connectivity with other habitats and biodiversity corridors, a rehabilitation program, and mechanisms for long-term protection, conservation and management.

28. The Offset Plan must be submitted for the approval of the Minister within 6 months of the commencement of the action. The approved Offset Plan must be implemented.

29. If the approved Offset Plan cannot be implemented because of failure of arrangements to secure the necessary area of private land then the proponent must submit for the Minister's approval an alternative Offset Plan. The alternative Offset Plan must provide at least an equivalent environmental outcome to those specified under condition 26 a) to o). The approved alternative Offset Plan must be implemented.

30. If the proponent proposes any action within a proposed offset area, other than actions related to managing that area as an offset property, approval must be obtained, in writing from the Department. In seeking Departmental approval the proponent must provide a detailed assessment of the proposed action including a

map identifying where the action is proposed to take place and an assessment of all associated adverse impacts on MNES. If the Department agrees to the action within the proposed offset site, the area identified for the action must be excised from the proposed offset and alternative offsets secured of equal or greater environmental value in relation to the impacted MNES.

31. The proponent must secure the offset within 2 years of commencement.

Offset Area Management

32. Within 12 months of securing the offset area required under the approved Offset Plan, the proponent must develop an Offset Area Management Plan which must specify measures to improve the environmental values of the offset area in relation to MNES, including;

    a) the documentation and mapping of current environmental values relevant to MNES of the area;

    b) measures to address threats to MNES including but not limited to grazing pressure and damage by livestock and adverse impacts from feral animals and weeds;

    c) measures to provide fire prevention and management regimes appropriate for the MNES;

    d) management of revegetation areas to the stage where habitat is established or improved for listed species and revegetation areas meet the criteria for 'remnant status' for that threatened ecological community;

    e) an objective, that revegetation areas meet the criteria applicable at the time for 'remnant status' and measures to ensure application is made to have the revegetation areas reclassified as 'remnant vegetation' in accordance with the relevant Queensland legislation;

    f) monitoring including the undertaking of ecological surveys to assess the success of the management measures against identified milestones and objectives;

    g) performance measures and reporting requirements against identified objectives, including trigger levels for corrective actions and the actions to be taken to ensure performance measures and objectives are met.

33. Within 12 months of securing the offset area the Offset Area Management Plan must be submitted for the approval of the Minister. The approved Offset Area Management Plan must be implemented.

Rehabilitation Area Offset

34. Within 2 years of the commencement of gas field development the proponent must secure a Rehabilitation Area Offset of at least 1550 hectares of privately held property to compensate for indirect adverse impacts on MNES. The proponent must:

a) obtain ownership or a legally binding agreement from a landowner over an area of property to re-establish areas in perpetuity of the threatened Brigalow (*Acacia harpophylla* dominant and co-dominant) ecological community, Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions, Natural Grasslands of the Queensland Central Highlands and the northern Fitzroy Basin and associated listed migratory and listed threatened species' habitat; and

b) notify the Department in writing within 30 business days of securing the Rehabilitation Area Offset.

Note: The Rehabilitation Area Offset is an additional area to the Offset area required under condition 26.

35. The Rehabilitation Area Offset must:

a) be within historical distributions of the ecological communities (before clearing occurred) and as close as possible to the project area;

b) include intact elements of remnant and/or high value regrowth of the ecological communities; and

c) include or have potential for providing habitat and micro habitat requirements for listed migratory and threatened species in condition 25, Table 4, that relate to the ecological communities).

36. If, within 2 years of the commencement of gas field development the Rehabilitation Area Offset has not been secured, then the proponent must within 30 business days, notify the Minister and provide for the Minister's approval an alternative offset measure. The alternative must provide at least an equivalent environmental outcome to those specified in relation to the Rehabilitation Area Offset. The approved alternative must be secured and implemented in accordance with conditions 34 and 35.

Rehabilitation Area Plan

37. Within 2 years of commencement of gas field development, the proponent must prepare a Rehabilitation Area Plan for the offset required under condition 34.

38. The Rehabilitation Area Plan must provide for commitments and actions to lead to the increase in the spatial extent and improvement in the condition of existing remnants, and for the establishment of new self sustaining functional 'remnant vegetation' communities, consistent with that which existed prior to clearing and with the capacity to provide habitat for the species identified in condition 25, as unavoidably impacted by the action.

39. The Rehabilitation Area Plan must include:

a) details of the area to be rehabilitated including location and maps;

b) documentation including mapping of current environmental values relevant to MNES of the area;

c) where revegetation through planting seedlings and/or seeds is intended details of appropriate species and ratios of species relevant to historically occurring listed migratory and threatened species' habitat and the Brigalow

(*Acacia harpophylla* dominant and co-dominant) ecological community; Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions; Natural Grasslands of the Queensland Central Highlands and the northern Fitzroy Basin;

d) the source and provenance of the seed and/or seedlings which will be used;

e) measures to address threats to MNES including but not limited to grazing pressure and damage by livestock and adverse impacts from feral animals and weeds;

f) measures to provide fire management regimes appropriate for the MNES;

g) measures to manage the Natural Grasslands of the Queensland Central Highlands and the northern Fitzroy Basin in accordance with the recommendations of the approved conservation advice for the ecological community;

h) monitoring measures including ecological surveys to measure the establishment and ongoing success of the revegetation based on a comparison with high quality habitat for listed migratory and listed threatened species, and ecological community reference sites;

i) performance measures and reporting requirements against identified objectives, including trigger levels for corrective actions and the actions to be taken to ensure performance measures and objectives are met.

40. Within 2 years of the commencement of gas field development the Rehabilitation Area Plan must be submitted for the approval of the Minister. The approved Rehabilitation Area Plan must be implemented.

41. To ensure the long term protection of the Rehabilitation Area the proponent must:

a) manage Brigalow and Semi-evergreen Vine Thickets of the Brigalow Belt (North and South) and Nandewar Bioregions components of the Rehabilitation Area to a stage where they meet the respective criteria for 'remnant status' for the Brigalow (*Acacia harpophylla* dominant and co-dominant) ecological community and 'remnant status' for the Semi-evergreen Vine Thickets of the Brigalow Belt (North and South) and Nandewar Bioregions;

b) When areas of revegetation meet criteria applicable at the time for 'remnant vegetation' ensure application is made to have the revegetation areas remapped and reclassified as 'remnant vegetation' in accordance with the relevant Queensland legislation. The management measures must continue to be implemented in areas not meeting the criteria for 'remnant status' until this has been achieved (or until approval to cease the management regime is provided by the Minister in writing);

c) manage the Natural Grasslands of the Queensland Central Highlands and the northern Fitzroy Basin as required by condition 39 for the life of the project;

d) define corrective actions which will be undertaken if performance measures and reporting indicate that successful rehabilitation has not been achieved;

e) identify persons responsible and arrangements for implementing the Rehabilitation Area Plan and for reporting on performance; and

f) notify the Department in writing of the reclassification of those areas of Brigalow within the Rehabilitation Area as 'remnant vegetation' within 30 business days of the reclassification occurring.

42. If the proponent proposes any action within a proposed offset area, other than actions related to managing that area as an offset property, approval must be obtained, in writing from the Department. In seeking Departmental approval the proponent must provide a detailed assessment of the proposed action including a map identifying where the action is proposed to take place and an assessment of all associated adverse impacts on MNES. If the Department agrees to the action within the proposed offset site, the area identified for the action must be excised from the proposed offset and alternative offsets secured of equal or greater environmental value in relation to the impacted MNES.

CSG Water Management

43. The proponent must:

a) take all reasonable measures to ensure that CSG water, including extracted groundwater, treated or amended CSG water, and any associated waste water, brine crystals and/or solids generated as a result of treating or amending water have no significant impact on any MNES during or beyond the life of the project; and

b) if any such impacts arise apply measures identified in the Coal Seam Gas Water Monitoring and Management Plan, or other requirements under these conditions, to mitigate or make good such impacts to the satisfaction of the Minister.

Coal Seam Gas Water Monitoring and Management Plan

Hydraulic connection

44. If the proponent demonstrates to the satisfaction of the Minister, on the advice of the expert panel, that an aquifer has negligible hydraulic connectivity to other aquifers, then groundwater drawdown limits and threshold values (for groundwater drawdown and quality) for response measures in these conditions do not apply to that aquifer.

45. To avoid doubt, monitoring and risk management requirements in the Stage 1 Coal Seam Gas Water Monitoring and Management Plan (Stage 1 CSG WMMP) and the Stage 2 Coal Seam Gas Water Monitoring and Management Plan (Stage 2 CSG WMMP) (outlined below) will continue to apply to any aquifer which the proponent has demonstrated to the satisfaction of the Minister, on the advice of the expert panel, has negligible hydraulic connectivity to other aquifers.

46. If the Minister is satisfied, acting on advice of an expert panel, that new evidence indicates a material change in hydraulic connectivity of an aquifer to which

condition 44 applies, the Minister may notify the proponent, in writing, that condition 44 does not apply to that aquifer.

Default drawdown

47. Within 20 business days from the date of the project approval, or such longer period specified by the Minister in writing, the proponent must submit to the satisfaction of the Minister, modelled groundwater drawdown contour data and contour plots for each targeted aquifer.

48. The Minister, having regard to the minimum drawdown prediction from the proponent's Environmental Impact Statement and the information supplied under condition 47, will specify to the proponent, in writing, the default groundwater drawdown limit for each aquifer that will apply until the Minister's approval of the Stage 1 CSG WMMP. The proponent must not exceed the groundwater drawdown limits specified by the Minister.

Stage 1 CSG Water Monitoring and Management Plan

49. Within 6 months from the date of the project approval, the proponent must submit for the approval of the Minister a Stage 1 Coal Seam Gas Water Monitoring and Management Plan (Stage 1 CSG WMMP) which includes at least:

Groundwater monitoring and management

a) groundwater drawdown limits for each targeted aquifer;

b) a program and schedule for aquifer connectivity studies and monitoring of relevant aquifers to determine hydraulic connectivity;

c) a program and schedule for field piloting of aquifer reinjection of treated CSG water and other groundwater repressurisation techniques;

d) early warning indicators where drawdown thresholds are being approached.

Hydraulic fracturing

e) the estimated number and the spatial distribution of boreholes where hydraulic fracturing may be necessary, an annual review of the estimate, and recording of actual use;

f) details of constituent components of any hydraulic fracturing agents and any other reinjected fluid(s), and their toxicity as individual substances and as total effluent toxicity and ecotoxicity, based on methods outlined in the National Water Quality Management Strategy;

Surface water monitoring and management

g) an ongoing water quality and quantity surface water monitoring plan that includes at least:

i) identification of the surface and aquatic systems to be monitored and their environmental values, water quality, and environmental characteristics, and the rationale for selection;

ii) the number and locations of monitoring sites upstream and downstream of proposed discharge of CSG water (whether treated water, amended water or raw water), including test and reference sites upstream and downstream and before and after any proposed impacts;

iii) the frequency of the monitoring and rationale for the frequency;

iv) baseline data for each monitoring site for comparison of monitoring results over the life of the project;

v) the approach to be taken to analyse the results including the methods to determine trends to indicate potential impacts;

vi) threshold values that protect relevant MNES (such as reporting or control line values for additional investigation, more intensive management action, make good, and cease operations) at which management actions will be initiated to respond to escalating levels of risk and designed to protect water quality and the associated environmental values of surface and aquatic systems;

vii) water treatment and amendment methods and standards;

viii) water storage locations and volumes including any storage and volumes required to pilot or implement reinjection or other groundwater repressurisation techniques;

ix) water use or disposal options and methods (whether for beneficial use or not) including frequency, volumes, quality and environmental values documented for each receiving environment;

x) brine storage locations and volumes, and brine crystal waste management;

xi) emergency water discharges, their volumes and quality;

xii) references to standards and relevant policies and guidelines;

Response actions

h) mechanisms to avoid, minimise and manage risk of adverse impacts and response actions and timeframes that can be taken by the proponent if:

   (1) threshold values for surface water quality and water environmental values specified in the CSG WMMP are exceeded;

   (2) there are any unforeseen emergency discharges; and

Reporting

i) performance measures, annual reporting to the Department, and publication of reports on the internet.

Note: A key objective of the CSG WMMP groundwater components is to maintain or restore aquifer pressure, as affected by CSG production, to levels that avoid risk of adverse impact on MNES.

50. The proponent must implement the Stage 1 CSG WMMP approved in writing by the Minister acting on advice of an expert panel. The proponent must not exceed the groundwater drawdown limits for each aquifer specified in the Stage 1 CSG WMMP. The Stage 1 CSG WMMP will apply until the commencement of the approved Stage 2 CSG WMMP.

Note: A key objective of the CSG WMMP groundwater components is to maintain or restore aquifer pressure, as affected by CSG production, to levels to avoid risk of adverse impact on MNES.

51. The proponent must implement the Stage 1 CSG WMMP approved in writing by the Minister acting on advice of an expert panel. The proponent must not exceed the groundwater drawdown limits for each aquifer specified in the Stage 1 CSG WMMP. The Stage 1 CSG WMMP will apply until the commencement of the approved Stage 2 CSG WMMP.

Stage 2 CSG Water Monitoring and Management Plan

52. Within 18 months from the date of the approval of the action the proponent must submit for the approval of the Minister, a Stage 2 Coal Seam Gas Water Monitoring and Management Plan (Stage 2 CSG WMMP). The proponent must allow a further 3 months for the Minister's consideration of approval of the Stage 2 CSG WMMP.

53. In addition to the matters in the Stage 1 CSG WMMP, the Stage 2 CSG WMMP must also include:

Groundwater monitoring and management

a) an ongoing CSG water treatment program to ensure that any water to be used for re-injection, or used for other groundwater repressurisation options, is treated at least equal to the water quality of the receiving groundwater system or environment;

b) the method, data and the evidentiary standards necessary to support a conclusion that an aquifer from which CSG water is being extracted is not hydraulically connected to other aquifers;

c) a groundwater quality and quantity monitoring plan to monitor the aquifers underlying the project area using a statistically and hydrogeologically valid, best practice bore monitoring network across the project area addressing at least;

   i) the aquifers to be monitored and the rationale for selection;

   ii) the number and locations of monitoring bores and their flow, pressure, head, and water quality characteristics;

   iii) the frequency of the monitoring and rationale for the frequency;

   iv) baseline data for each monitoring site for comparison of monitoring results over the life of the project;

   v) the approach to be taken to analyse the results including the methods to determine trends to indicate potential impacts;

vi) groundwater drawdown threshold values and groundwater quality threshold values for each aquifer (based on regional groundwater modelling endorsed by the Minister) at which management actions (such as reporting or control line values for additional investigation, more intensive management action, make good, and cease operations) will be initiated to respond to escalating levels of risk, including increasing levels of drawdown, contamination of groundwater, or subsidence;

vii) references to standards and relevant policies and guidelines;

viii) mechanisms to monitor, avoid, minimise, manage, and respond to risks; and

ix) performance measures, annual reporting to the Department, and publication of reports on the internet;

Note 1: Threshold values will be identified in the plan and during the life of the approval and related conditions may be varied by the Minister on advice from an expert panel to reflect the best available data and scientific information.

Note 2: For clarity, the monitoring required under this condition may be undertaken jointly with others.

Response actions

d) an exceedence response plan that includes:

i) mechanisms to avoid, minimise and manage risk of adverse impacts and response actions and timeframes that can be taken by the proponent if:

(1) threshold values for surface water quality and water environmental values specified in the CSG WMMP are exceeded;

(2) threshold values specified in the CSG WMMP for aquifer drawdown or groundwater contamination are exceeded;

(3) subsidence or surface deformation occurs which impacts on surface or groundwater hydrology;

(4) there are any unforeseen emergency discharges; and

ii) a program and timetable for repressurisation using re-injection of CSG water from hydraulically connected aquifers back into appropriate permeable aquifers and for other groundwater repressurisation options to re-establish pressure levels and water qualities to the satisfaction of the Minister on the advice of an expert panel, in conjunction with appropriate measures to forecast and proactively manage any short-term impacts.

Note: The design of these groundwater repressurisation activities must be informed by a regional-scale groundwater model and a hydrochemical model approved by the Minister.

Implementation of Stage 1 and Stage 2 CSG WMMP

54. The proponent must implement the approved Stage 2 CSG WMMP, no later than 24 months from the date of the project approval.

55. Three months before commencement of each subsequent major stage of the proponent's gas field development the proponent must submit a revised Stage 2 CSG WMMP for the consideration of approval of the Minister.

Note: The Coal Seam Gas Water Monitoring and Management Plan should be based on the proponent's planned staged development within the project area over the total life of the project consistent with approvals granted by the Queensland Government. Condition 88 requires notification of commencement of major stages of gas field development.

56. The proponent may only have, own, hold, take, or otherwise utilise sufficient CSG water as is required to undertake the approved activities within the approved project area.

57. The Stage 1 and Stage 2 CSG WMMP as approved by the Minister in writing, acting on advice of an expert panel, and in accordance with the timing requirements under these conditions, must be implemented.

Note: The Queensland Coordinator-General also requires surface water and groundwater monitoring and management. The proponent may incorporate requirements into plans that meet both Queensland and Commonwealth requirements.

Revisions of Stage 1 and Stage 2 CSG WMMP

58. Consistent with an adaptive management approach the Stage 2 CSG WMMP must be reviewed and updated for each new stage of gas field development: to take into account of major updates to the Regional Groundwater Model; and to address findings of Cumulative Impact Assessment Reports required by the Queensland Government and these conditions of this approval.

59. A reviewed and updated Stage 2 CSG WMMP must be submitted to the Minister for written approval. Commencement of each new stage of gas field development must not occur without approval. The proponent may undertake activities that are critical to commencement that are associated with mobilisation of plant and equipment, materials, machinery and personnel prior to the start of development only if such activities will have no adverse impact on MNES, and only if the proponent has notified the Department in writing before an activity is undertaken. The approved CSG WMMP must be implemented for the relevant gas field area.

60. The Minister may, through a request in writing, require that the Stage 1 or Stage 2 CSG WMMP be revised or amended, which may include requirements for amendments to address expert advice. Any such request must be acted on within the timeframe specified.

Note: The Minister may throughout the project life seek advice from experts, or an expert panel. As a consequence specific matters identified through such advice may need to be addressed in the Plan. Where such advice is sought the proponent would be provided with opportunity to submit information and respond to the specific matters identified, in order to ensure the Plan is based on the best available information. Review requirements will facilitate adaptive management, alignment with Queensland Government approval requirements, and account for potential cumulative impacts as new scientific information becomes available over the life of the project.

Regional groundwater model

61. To avoid or minimise direct or indirect adverse impacts on MNES, the proponent must:

    a) develop a regional scale, multi-layer, transient groundwater flow model of the cumulative effects of multiple CSG developments;

    b) develop and implement an adaptive management framework, applicable at both the project scale and regional-scale, that includes monitoring and mitigation approaches to assess and manage the impacts of CSG developments, which takes into account the groundwater model of cumulative impacts required under (a); and

    c) contribute data as requested over the life of the Project to inform a Basin-scale multi-layer, transient groundwater flow model of the cumulative effects of multiple CSG developments in the Surat and Bowen Basins.

    Note 1: In the absence of sufficient evidence to characterise and quantify potential impacts at the regional scale, this condition requires the model to be developed as an early warning system, informed by any other regional cumulative hydrological modelling, such that any hydrological changes can be identified at an early stage and appropriate, effective remedial actions implemented before irreversible environmental adverse impacts on MNES.

    Note 2: Condition 7 Part 2, Appendix 2 of the Queensland Coordinator-General's report of 28 May 2010, provides for the proponent to provide a regional groundwater model.

    Note 3: The Minister may throughout the project life seek advice from the Department or additional advice from experts, or an expert panel. As a consequence specific matters identified through the advice may need to be addressed in the Model. Where such advice is sought the proponent would be provided with the opportunity to provide information and respond to specific matters in order to ensure the Model is based on the best available information and advice.

62. The model required under condition 61 (a) must:

    a) use the best hydrostratigraphic and hydrogeological information available at the time, to identify the likely cumulative impacts of multiple CSG developments across the Surat and Bowen Basins;

    b) detail all data relating to the hydraulic connectivity between aquifers and aquitards used to substantiate the model parameterisation;

    c) be calibrated against measured piezometer responses in areas where CSG development has commenced;

    d) in relation to the reporting of model outputs – conform to the recommendations of the former Murray Darling Basin Commission Groundwater Modelling Guidelines;

    e) include:

        i) water balances for the major aquifers affected by the CSG operations including the expected timeframe of any changes in water balance and pressure;

        ii) recharge versus extraction volumes for those aquifers;

        iii) details of justification for and assumptions regarding aquifer seal integrity (i.e. thickness and distribution of aquitards);

        iv) quantification of hydraulic connectivity between different units (aquifers and aquitards) through drill stem and pump testing; and

v) quantification of the impacts of reinjection and other groundwater repressurisation techniques on aquifer water balances;

f) provide for adaptive monitoring, through six-monthly reporting of monitoring results and new data, and annual updates of numerical simulation models and re-interpretation of results to relevant Queensland Government and Commonwealth agencies.

63. The model under condition 61 (a) must be provided at the same time it is provided to fulfil requirements of the Queensland Government.

64. The proponent must seek approval of the Department if the requirement for a model required under 61 (a) is to be satisfied the proponent's contribution to a regional groundwater model developed by the Queensland Water Commission (or its successor agency), as agreed between the proponent and the Commission.

Note: Where the proponent is conditioned (here or elsewhere under the approval) to address a matter that may be most efficiently managed by another party, whether another CSG proponent or a Queensland Government agency, the proponent may discharge their responsibility under the condition by contributing financially and cooperating with other parties to meet the condition i.e. to develop a single representative regional model and/or to provided a single report from one or more proponents.

Groundwater assessment, mitigation and monitoring

65. The proponent must provide to the Minister a copy of the groundwater assessment required under condition 8 ('groundwater impact assessment report'), Part 2, Appendix 2 of conditions imposed by the Queensland Coordinator-General in his report dated 28 May 2010. In addition, as part of a staged process of adaptive management of CSG development, the proponent must also provide the following in relation to subsidence:

a) baseline and ongoing geodetic monitoring programs to quantify deformation at the land surface within the proponent's tenures. This should link from the tenement scale to the wider region across which groundwater extraction activities are occurring and any relevant regional program of monitoring;

b) modelling to estimate the potential hydrological implications of the predicted surface and subsurface deformation; and

c) measures for linking surface and sub-surface deformation arising from CSG activities.

66. When requested by the Department, the proponent must provide to the Department all geodetic monitoring data and related information from the program. This data must be provided within 30 days of request, or in a timeframe agreed to by the Department in writing.

67. Any program required under condition 65 must be submitted to the Minister for approval with a proposed implementation schedule. The approved program must be implemented in a timeframe specified by the Minister.

Springs assessment, mitigation and monitoring

68. As a precautionary approach, the proponent within 9 months of approval, or such other timeframe specified in writing by the Minister, survey for, reconfirm, and notify the Minister of the presence or absence of any springs proximal to the project area and within 100 kilometres of modelled limits of aquifer drawdown. The survey must:

    a) include the Lucky Last and the Scotts Creek springs in the vicinity of the Fairview gas field; and

    b) may with the written approval of the Minister comprise the proponent's contribution to a springs survey developed with input from the Department and undertaken by the Queensland Water Commission (or its successor agency).

    Note1: This survey may include use of remote sensing and may be aligned or combined with similar survey requirements that are to be undertaken by other proponents or the Queensland Water Commission. To avoid doubt, the survey should report on both discharge and recharge springs, as EPBC Act listed species may occur in association with either.

    Note 2: Surveys required under this condition may be undertaken by the proponent alone or in partnership with other CSG proponents.

69. If presence of *The community of native species dependant on natural discharge of* groundwater *from the Great Artesian Basin*, or listed threatened species that are reliant on springs, is confirmed by a survey under condition 68, then the proponent must (unless the proponent is not able to gain access to the spring, even with the assistance of relevant government agencies):

    a) for springs within the project area - within 1 month of survey completion protect the ecological community and/or listed threatened species from gas field development activities by establishing and maintaining a minimum 200 m employee/contractor exclusion zone from the relevant springs within the project area, unless such access is required in an emergency, for environmental management, or for monitoring purposes;

    Note: The Constraints Planning and Field Development Protocol will also apply.

    b) Within 12 months of the survey completion provide to the Minister a management plan for all the relevant springs which includes:

        i) a specific monitoring and remediation program to protect the ecological community and/or listed threatened species and cumulative impacts on any components within the project area and within modelled limits of aquifer draw-down that may arise from CSG water extraction, including identifying trigger levels and responses in the case of changes to groundwater flow or quality in each relevant spring;

        ii) a baseline analysis of four 3-monthly samplings to determine the seasonal presence or absence of all relevant springs, and to establish: the existence, dispersion and extent of listed threatened species; aquatic macro-invertebrates; aquatic plants; water quality characteristics; spring physical parameters including seasonal variation, depth, and flow rate;

aquifer source including hydrochemical and isotopic analysis, and comparison of water levels with respect to source aquifer potentiometric surface;

iii) ongoing monitoring on a 6 monthly basis (to cover high and low rainfall seasons) over the life of the project in the region relevant to each spring;

iv) analysis and calibration of the monitoring results against the baseline data (collected under (ii) of this condition) as the CSG water and gas extraction occurs over the life of the project;

v) threshold values (such as reporting or control line values for additional investigation, more intensive management actions, make good, and cease operations) at which management actions will be initiated to respond escalating levels of impact and designed to protect *The community of native species dependent on the natural discharge of groundwater from the Great Artesian Basin* in the case of changes to groundwater pressure, flow, or water quality in GAB springs;

vi) specific mechanisms to avoid, minimise, and manage risks, and response actions that can be taken by the proponent where:

(1) any threshold values for surface environmental values are exceeded;

(2) any threshold values for aquifer draw down, water quality change, or aquifer contamination are exceeded;

(3) subsidence or surface deformation occurs, particularly if it impacts on surface or groundwater hydrology; and

(4) any unforeseen emergency discharges occur;

vii) established best practice standards, policies and guidelines; and

viii) performance measures, reporting to the Department, and publication of reports on the Internet.

Note: Individual species and ecological community management plans are also required in accordance with condition 7 and 8. The management plans may be developed by the proponent or in partnership with other CSG proponents.

70. Any management plan required under condition 69(b) must be submitted to the Minister for consideration of approval including seeking advice from an expert panel. The approved plan must be implemented within the timeframe specified by the Minister. The approved plan must be published on the Internet within 20 business days of being approved by the Minister.

71. The results of the baseline analysis under 69 (b) must be incorporated into the regional groundwater model required under condition 61.

Discharge, disposal or use of CSG salts, brine concentrates and heavy metals / metalloids

72. Concentrated CSG salts and other brine concentrates derived from CSG water may only be disposed by either:

a) injection into deeper, underlying confined aquifers of equivalent water chemistry; or, failing that,

b) in secure contaminated waste disposal facilities that are licensed, operated, and monitored in accordance with the requirements of the Queensland Government.

Note: This condition does not preclude the harvesting of salts and heavy metals for commercial purposes.

Note: Salt disposal within the Murray-Darling Basin must be in accordance with the requirements for salinity management and accountability set out in the *Water Act 2007* and the *Basin Salinity Management Strategy*.

Notification of threshold breaches and response actions

73. Within 10 business days of the proponent identifying monitoring outcomes that indicate a risk of reduction in groundwater pressure or water quality, the proponent must notify the Minister in writing of the trend and the proponent's response action.

74. Within 10 days of a surface or groundwater threshold value (for example, water quality, environmental value, pressure, head, volume, or flow) being exceeded, the proponent must advise the Minister in writing of the circumstances, the threshold exceeded, the immediate action taken by the proponent, and proposed action to remedy the breach and avoid a subsequent breach.

75. Immediate action may include the ceasing of water / gas extraction and / or water discharge or use in the area affected until investigations can be completed to determine the cause and remedial action. The proponent's proposed response action must be notified to the Minister in writing.

76. The Minister may direct in writing that the proponent cease water / gas extraction and/or water discharge or use in the area affected, and if the Minister is not satisfied that the action proposed or taken by the proponent will remedy the situation, or make good any environmental loss, the Minister may direct the proponent to implement alternative action at the expense of the proponent.

Note: The proponent will be provided with a reasonable opportunity to comment on any such direction before it is required to be implemented.

Notifications and requirements about construction, operation, brine management and environmental management plans

77. The proponent must notify the Department in writing when developing or reviewing construction, operational, groundwater, CSG water, brine management, salinity management, environmental management, or other plans where the scope of the plans relates to potential direct, indirect or cumulative adverse impacts on MNES, or involves management of MNES. The proponent must in the notification indicate the relevant components of such plans relating to

MNES and their management, and the timeframe for development and approval of the plans under Queensland Government requirements.

78. Where the scope of the plans relates to potential adverse impact on MNES, or involves management of MNES the plans must be submitted to the Minister for approval of those components. Approved components of plans must be implemented.

Note: Where efficiency will be enhanced the proponent may also prepare and align management plans required under these conditions with the requirements of the Queensland Government as long as the relevant matters under the conditions of this approval are clearly and adequately addressed.

Cumulative Impact Report

79. On the same date that an assessment of cumulative impacts is provided in accordance with requirements imposed by the Queensland Government, or such other timeframe specified in writing by the Minister, the proponent must provide a copy of that report to the Minister.

80. In addition to meeting any requirements imposed by the Queensland Government, the report on cumulative impacts provided to the Minister must also address the following, in relation to potential adverse impacts on MNES:

a) cumulative impacts relating to all listed species and listed ecological communities within and outside project area, including The community of native species dependant on natural discharge of groundwater from the Great Artesian Basin;

b) any surface water and groundwater environmental values, including groundwater pressures and groundwater hydrochemistry which, if altered, may have an impact on listed species and ecological communities within and outside project area;

Note: These requirements may also be included together with the detailed assessment of cumulative impacts required under condition 2, Part 2, Appendix 2, of the Coordinator-General's reported dated 28 May 2010.

81. Within 3 years of the date that the cumulative impact report is provided to the Minister, or such other timeframe specified in writing by the Minister, the proponent must review that cumulative assessment and the report in the light of the most up-to-date information and the regional transient groundwater model required under condition 61 (a). The proponent must provide a report on the review to the Minister and at the same time publish the report on its website.

Note: The assessment scope of the cumulative impact report is not limited to groundwater or surface water impacts. These conditions provide that, if the Minister believes that it is necessary or desirable for the better protection of a relevant controlling provision for the action, the Minister may request the proponent to make, within a period specified by the Minister, revisions to a plan approved under these conditions. The Minister may make such a request in the light of the cumulative impacts assessment, or the review of the cumulative impacts assessment. Section 136(1)(b) of the EPBC Act additionally provides that the Minister may revoke, vary or add to a condition of this approval if the action has a significant impact that was not identified in assessing the action, and if the Minister relevantly believes it is necessary.

Decommissioning Plan

82. Within five years of the commencement of gas field development, the proponent must develop a Decommissioning Plan. The Plan must:

    a) require the progressive removal or reuse of infrastructure where gas field operations cease during the project life;

    b) establish management practices and safeguards to minimise environmental disturbance;

    c) ensure MNES are not impacted by progressive decommissioning, or final decommissioning of gas field infrastructure;

    d) define rehabilitation actions for the infrastructure sites following decommissioning including for:

    e) optimising habitat and habitat connectivity for MNES;

    f) enhancing pre-construction environmental quality; and

    g) ongoing management during rehabilitation.

83. The Decommissioning Plan must be submitted for the approval of the Minister. The approved Plan must be implemented.

Survey data

84. All survey data collected for the project must be collected and recorded so as to conform to data standards notified from time to time by the Department. When requested by the Department, the proponent must provide to the Department all species and ecological survey data and related survey information from ecological surveys undertaken for MNES. This survey data must be provided within 30 business days of request, or in a timeframe agreed to by the Department in writing.

Publication of Protocol and Plans

85. The Protocol and all plans approved by the Minister under these conditions must be published on the proponent's website within 30 business days of approval by the Minister.

86. The Department may request the proponent to publish on the Internet a plan in a specified location or format, and with specified accompanying text. The proponent must comply with any such request.

Notification of commencement

87. Within 20 business days of the commencement of the action, the proponent must advise the Department in writing of the actual date of commencement.

88. The proponent must notify the Department in writing of the proposed dates for each subsequent major stage of gas field development at least 40 business days before their commencement, and within 20 business days notify actual commencement dates, and within 20 business days of any major variations to gas field development notify the variations.

Request for variation of plans by proponent

89. If the proponent wants to act other than in accordance with a plan approved by the Minister under these conditions, the proponent must submit a revised plan for the Minister's approval.

90. If the Minister approves the revised plan, then that plan must be implemented instead of the plan originally approved.

91. Until the Minister has approved the revised plan, the proponent must continue to implement the original plan.

Revisions to plans by the Minister

92. If the Minister believes that it is necessary or desirable for the better protection of a relevant controlling provision for the action, the Minister may request the proponent to make, within a period specified by the Minister, revisions to a plan approved under these conditions. Without limiting this condition, the Minister may also make such a request following a study under s.255AA of the *Water Act 2007*.

93. If the Minister makes a request for revision to a plan, the proponent must:

    a) comply with that request; and

    b) submit the revised plan to the Minister for approval within the period specified in the request.

94. The proponent must implement the revised plan on approval of the Minister.

95. Until the Minister has approved the revised plan, the proponent must continue to implement the original plan.

Minimum timeframes for consideration of plans

96. For any plan required to be approved by the Minister under these conditions, the proponent must ensure the Minister is provided at least 20 business days for review and consideration of the plan, unless otherwise agreed in writing between the proponent and the Minister.

Compliance with State environmental and other authorities

97. The proponent must comply with all environmental authorisations issued by the State, including conditions of an environmental authority issued under the EP Act.

Provision of State plans

98. If a condition of a State approval requires the proponent to provide a plan then the proponent must:

a) provide the plan to the Department or Minister on request, within the period specified in the request; and

b) prepare and combine plans that meet both Queensland Government requirements and the Commonwealth requirements under this approval where this is efficient. In doing so the proponent must clearly identify the respective responsibilities and how these are being addressed in relation to these conditions.

Timeframes

99. If these conditions require the proponent to provide something by a specified time, a longer period may be specified in writing by the Minister.

Auditing

100. On the request of and within a period specified by the Department, the proponent must ensure that:

a) an independent audit of compliance with these conditions is conducted; and

b) an audit report, which addresses the audit criteria to the satisfaction of the Department, is published on the Internet and submitted to the Department.

101. Before the audit begins, the following must be approved by the Department:

a) the independent auditor; and

b) the audit criteria.

102. The audit report must include:

a) the components of the project being audited;

b) the conditions that were activated during the period covered by the audit;

c) a compliance/non-compliance table;

d) a description of the evidence to support audit findings of compliance or non-compliance;

e) recommendations on any non-compliance or other matter to improve compliance;

f) a response by the proponent to the recommendations in the report (or, if the proponent does not respond within 20 business days of a request to do so by the auditor, a statement by the auditor to that effect);

g) certification by the independent auditor of the findings of the audit report.

103. The financial cost of the audit will be borne by the proponent.

104. The proponent must:

a) implement any recommendations in the audit report, as directed in writing by the Department;

b) investigate any non-compliance identified in the audit report; and

c) if non-compliance is identified in the audit report - take action as soon as practicable to ensure compliance with these conditions.

Note: The Department will discuss findings of audit reports with the proponent to ensure compliance with conditions and before the issue of any directions.

105. If the audit report identifies any non-compliance with the conditions, within 20 business days after the audit report is submitted to the Department the proponent must provide written advice to the Minister setting out the:

a) actions taken by the proponent to ensure compliance with these conditions; and

b) actions taken to prevent a recurrence of any non-compliance, or implement any other recommendation to improve compliance, identified in the audit report.

Note: Independent third party auditing may include audit of the proponent's performance against the requirements of any plan required under these conditions.

Reporting non-compliance

106. The proponent must, when first becoming aware of a non-compliance with these conditions, or a plan required to be approved by the Minister under these conditions:

a) report the non-compliance and remedial action to the Department within five business days;

b) bring the matter into compliance within a reasonable time frame specified in writing by the Department.

Record-keeping

107. The proponent must:

a) maintain accurate records substantiating all activities associated with or relevant to these conditions of approval, including measures taken to implement a plan approved under these conditions; and

b) make those records available on request to the Department. Such records may be subject to audit by the Department or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with these conditions.

Note: Audits or summaries of audits carried out under these conditions, or under section 458 of the EPBC Act, may be posted on the Department's website. The results of such audits may also be publicised through the general media.

Financial assurance

108. The proponent must:

a) provide the Minister with a financial assurance in the amount and form required from time to time by the Minister for activities to which these conditions apply; and

b) review and maintain the amount of financial assurance based on proponent reporting on compliance with these conditions, and any auditing of the activities.

109. The financial assurance is to remain in force until the Minister is satisfied that no claim is likely to be made on the assurance.

Note: The financial assurance may be used for rehabilitation of habitat and other purposes not addressed adequately by the proponent during the life of the project.

Annual Environmental Return

110. The proponent must produce an Annual Environmental Return which:

a) addresses compliance with these conditions;

b) records any unavoidable adverse impacts on MNES, mitigation measures applied to avoid adverse impacts on MNES; and any rehabilitation work undertaken in connection with any unavoidable adverse impact on MNES;

c) identifies all non-compliances with these conditions; and

d) identifies any amendments needed to plans to achieve compliance with these conditions.

111. The proponent must publish the Annual Environmental Return on the Internet within 20 business days of each anniversary date of this approval.

Dictionary

112. In these conditions:

Brigalow means for the purposes of the application of the Constraints Planning and Field Development Protocol the presence of the Brigalow (*Acacia harpophylla* dominant and co-dominant) ecological community includes Brigalow regrowth that retains the species composition and structural elements typical of that found in the undisturbed listed regional ecosystems but does not include:

a) vegetation that has been comprehensively cleared (not just thinned) within the last 15 years;

b) vegetation in which exotic perennial plants have more than 50% cover, assessed in a minimum area of 0.5 ha (100 m by 50 m); and

c) individual patches of Brigalow that are smaller than 0.5 ha.

Clearance of native vegetation means the cutting down, felling, thinning, logging, removing, killing, destroying, poisoning, ringbarking, uprooting or burning of native vegetation;

Commencement means any physical disturbance including clearance of native vegetation, new road work, and the establishment of well sites to develop the gas field project area (the project area is specified in condition 1). Commencement does not include minor physical disturbance necessary to undertake preclearance surveys, or to establish monitoring programs, or associated with the mobilisation of the plant and equipment, materials, machinery and personnel prior to the start of gas field development;

Conditions means these conditions attached to the approval of the action;

CSG means coal seam gas;

Department means the Australian Government department responsible for administering Part 4 of the EPBC Act;

Environmental constraints class B means habitat for listed threatened species and migratory species, and listed ecological communities as described in management plans for these matters, and as identified through ecological field surveys. It includes matters for which there is a disturbance limit specified in Tables 3 and 4 of condition 25. For the purposes of these conditions it does not mean other constraints identified by the proponent unless these relate to MNES;

EP Act means Environmental Protection Act 1994 (Qld);

EPBC Act means the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*;

Expert panel means an expert panel appointed by the Minister;

Gas field development means all activities associated with the development of the gas fields including (but not limited to) site clearance and site preparation; development of exploration and production wells; development of water and gas transmission pipelines; infrastructure access road construction; construction of

workers accommodation and office facilities; construction of gas compression stations; construction of pumping stations; construction of water treatment facilities; and construction of water storage dams.

High value regrowth for the purposes of these conditions means mature native vegetation that hasn't been cleared since 31 December 1989.

Impact risk zone means the area within 200 metres from the perimeter of environmental constraint class B;

Linear infrastructure means linear infrastructure including (but not limited to) gas and water gathering lines, low and high pressure gas and water pipelines, roads and tracks, power lines and other service lines;

Listed means those species, ecological communities or other identified matters of environmental significance listed for protection under Part 3 of the EPBC Act;

Minister means the Minister responsible for Part 4 of the EPBC Act, and may include a delegate of the Minister under s.133 of the EPBC Act;

MNES means matters of national environmental significance, being the relevant matters protected under Part 3 of the EPBC Act;

No impact zone means the area within 300 metres from the perimeter of environmental constraint class B;

Non-linear infrastructure means infrastructure including (but not limited to) exploration and production wells, compressor stations, regulated dams, reverse osmosis plants, brine encapsulation facilities, workers camps, and maintenance facilities.

Plan includes a report, study, protocol, program, or strategy (however described);

Proponent means the holder of the approval to which these conditions relate, and includes any person acting on behalf of the proponent;

Referral means a referral under the EPBC Act including any amendment of the referral.

Regulatory agency means agencies administering the EPBC Act and the EP Act (Qld);

Remnant vegetation for the purposes of these conditions means vegetation that can meet the following:

a) 50% of the predominant canopy cover that would exist if the vegetation community were undisturbed; and

b) 70% of the height of the predominant canopy that would exist if the vegetation community were undisturbed; and

c) Composed of the same floristic species that would exist if the vegetation community were undisturbed.

Trunkline rights of way means the linear construction footprint required to install gas and water trunklines, underground 33 kV power lines, above ground 33 kV

power lines, fibre optic cable and gas and water gathering lines. Trunkline rights of way may contain between one and ten gas and water trunklines, between one and ten power lines, between one and ten fibre optic cables and between one and up to twelve gathering lines running in parallel;

Water distribution pipelines means pipeline used to transfer raw or treated water to a user of that water or to transfer brine between facilities that manage brine;

Water gathering lines means pipelines used to transfer water between wells and storage ponds;

Water trunklines means pipelines used to transfer water between storage ponds and water treatment plants.

113. Unless the contrary is indicated, words in these conditions have the same meaning as in:

a) the EP Act.

b) the EPBC Act.

114. Unless the contrary is indicated, in these conditions:

a) words in the singular number include the plural and words in the plural number include the singular; and

b) condition headings are inserted for convenient reference only and have no effect in limiting or extending the language of condition to which they refer.

Figure 1: Santos' proposed project area (Reasonable Foreseeable Development Area – RFDA) and related gas field areas