ENVIRONMENTAL PROTECTION ACT 1994

Queensland Government

Department of Environment and Resource Management
Petroleum and Gas Unit
GPO Box 2454
BRISBANE QLD 4001

Environmental Authority (Chapter 5A Activities) Permit Number: PEN200748210

Section 309X *Environmental Protection Act 1994*

This environmental authority is granted under the Environmental Protection Act 1994 and includes conditions to minimise environmental harm caused, or likely to be caused, by the authorised petroleum activities. An environmental authority (chapter 5A activities) may be for petroleum activities authorised (under the Petroleum and Gas (Production and Safety) Act 2004, Petroleum Act 1923 or Petroleum (Submerged Lands) Act 1982) to occur under one of the following petroleum authorities: authority to prospect; petroleum lease, data acquisition authority, water monitoring authority, petroleum facility licence, survey licence or pipeline licence. In general, a petroleum activity means an activity that, under the relevant petroleum legislation, is an authorised activity, rehabilitation, remediation, and includes facilitation and supporting activities and any action taken to prevent environmental harm.

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Under the provisions of the *Environmental Protection Act 1994*, this environmental authority (chapter 5A activities) is issued to:

Principal Holder
Santos Limited
'G Santos Centre'
60 Flinders Street
ADELAIDE SA 5000

Joint Holders
Santos Petroleum Pty Ltd
'Santos Centre'
Ground Floor
60 Flinders Street
ADELAIDE SA 5000

Vamgas Pty Ltd
'G Santos Centre'
60 Flinders Street
ADELAIDE SA 5000

Delhi Petroleum Pty. Ltd.
25 Conyngham Street
Glenside SA 5065

in respect of carrying out Level 2 Petroleum Activities under Section 23 of the *Environmental Protection Regulation 2008* on the relevant petroleum authority(ies) identified below:

Relevant petroleum authority	Project Name	Location description
Petroleum Lease 301	Zeus/Minos	See Appendix B

This environmental authority (chapter 5A activities) [the authority] is subject to the condition that the holder of the environmental authority carry out the above petroleum activities in accordance with the conditions listed in the attached schedule and appendices.

This environmental authority remains in force unless it is cancelled, surrendered or suspended.

This environmental authority takes effect **from the date of grant of the authority.**

The anniversary date of this environmental authority is **20 May.**

sch4 - Personal information

Signed

20 MAY 2010
Date

Parma Nand
Delegate of Administering Authority
Environmental Protection Act 1994

Note: This environmental authority document is not proof of the current status of the environmental authority. The current status of the environmental authority may be ascertained by contacting the Administering Authority.

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SCHEDULE OF CONDITIONS

This environmental authority incorporates the following schedule of conditions relevant to various issues:

Schedule A - General Conditions

APPENDIX A - Definitions
APPENDIX B - Map of PL301
APPENDIX C - Environmentally Sensitive Areas

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SCHEDULE A GENERAL CONDITIONS

Condition 1 – Significant disturbance

Petroleum activities must not cause more than 0.1% of the total land area on the relevant petroleum authorities (excluding pipeline licences) that constitute the petroleum project to be significantly disturbed any one time.

Condition 2 – Work program and development plan

The holder of the environmental authority must submit to the administering authority:

(a) a copy of the initial work program, later work programs and any amendments to work programs when submitted to the Department of Employment, Economic Development and Innovation (DEEDI) under the *Petroleum and Gas (Production and Safety) Act 2004* (P&G Act) for authorities to prospect; or

(b) a copy of the initial development plan, later development plans and any amendments to development plans when submitted to the DEEDI under the P&G Act for petroleum leases.

Condition 3 – Financial assurance

The holder or proposed holder of the environmental authority must:

(a) calculate a **financial assurance** as required by the administering authority ; and

(b) attach a completed Schedule of Disturbance to the original and any amended work program or development plan; and

(c) provide to the administering authority the financial assurance in the amount and form required by the administering authority at the time of submission of any original, later or amended work program or development plan; and

(d) maintain the financial assurance until the administering authority is satisfied that no claim is likely to be made on the assurance.

Condition 4 – Environmentally sensitive areas

The holder of the environmental authority must not:

(a) conduct petroleum activities within a Category A or Category B environmentally sensitive area;

(b) cause any significant disturbance to land within 1km of a Category A environmentally sensitive area or within 500m of a Category B environmentally sensitive area; or

(c) conduct petroleum activities in a Category C environmentally sensitive area unless there is a written agreement to enter the area for those activities from the relevant administering authority.

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Condition 5

If the relevant administering authority imposes any conditions on undertaking petroleum activities within a Category C environmentally sensitive area, the holder must comply with those conditions.

Condition 6 – River Trust Asset Areas

Petroleum Activities must not be carried out in River Trust Asset Areas without the approval of the relevant River Trust.

Condition 7 – Heritage places and archaeological artefacts

The holder of the environmental authority must take all reasonable and practicable measures to avoid impacting upon places of known or potential cultural heritage significance whilst carrying out petroleum activities.

Condition 8 – Wild river areas

The holder of the environmental authority must ensure that any petroleum activities carried out within a wild river area comply with the conditions in the relevant **wild river declaration** for the area that state they are for petroleum activities.

Condition 9 – Clearing vegetation

Clearing vegetation must be minimised and only be undertaken where necessary to carry out the authorised petroleum activities. Where viable alternatives exist, clearing vegetation must not be undertaken:

(a) in, or within 50 metres of, the **high bank** of a **watercourse**;

(b) in, or within 100 metres of a **wetland** or **spring**;

(c) in a way that dissects large tracts of vegetation resulting in a reduction in the current level of **ecosystem functioning**, an increase in **threatening processes**, or dissection of corridors of vegetation that provide connection between contiguous tracts of vegetation;

(d) in a way that damages adjacent live vegetation;

(e) in an **'of concern' regional ecosystem**;

(f) on slopes greater than 6° (~10%);

(g) on **dispersible soils** or **highly erodible soils**; or

(h) in **discharge areas.**

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Condition 10

Cleared vegetation must be stockpiled in a manner that facilitates respreading or salvaging and does not impede vehicle, stock or wildlife movements.

Condition 11 – Topsoil management

Except in areas of highly erodible soils, topsoil must be:

(a) removed from an area prior to other significant disturbance commencing in the area;

(b) stockpiled in a manner that will minimise erosion and preserve its biological and chemical integrity; and

(c) used only for on-site rehabilitation purposes.

Condition 12 – Acid sulfate soils

When carrying out petroleum activities in areas with a high probability of acid sulfate soils, the holder of the environmental authority must comply with an acid sulfate soil environmental management plan prepared in accordance with the *State Planning Policy 2/02 Guideline: Planning and Managing Development Involving Acid Sulfate Soils* and the relevant Guidelines.

Condition 13 – Drilling operations

All waste fluids and muds resulting from drilling and exploration activities must be contained in an appropriately constructed dam or containment structure for disposal, remediation or reuse where applicable.

Condition 14

Oil and synthetic based drilling muds are not authorised to be used under the authority.

Condition 15 – Pipeline construction

The pipeline construction corridor must not exceed 30 metres in width. Turn arounds and work areas must not exceed 50 metres in width.

Condition 16

During construction, pipe must be strung with gaps to allow for fauna movement across the line of the pipe.

Condition 17

Measures must be employed to prevent fauna entrapment in pipe sections or within the pipeline trench.

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Condition 18

Open trenches and pipes must be checked for fauna prior to backfill and any trapped animals removed.

Condition 19

Hydrostatic test water must be contained in dams on site, tested and either:

(a) directly reused where appropriate for petroleum activities;

(b) treated so that it meets water quality criteria for the intended reuse; or

(c) disposed of via evaporation.

Condition 20

The pipeline construction corridor must be rehabilitated on completion of laying the pipe, with the exception of the width of an access track, if necessary, to enable vehicular movement along the corridor for pipeline inspection and maintenance.

Condition 21 – Spill response

A spill response plan must be developed for all pipelines and other plant or equipment under this authority carrying liquids that have the potential to cause environmental harm. The plan must address the following:

(a) monitoring and detection systems;

(b) notification and reporting procedures (internal and external);

(c) call-out procedures and contact lists;

(d) measures required to halt the spill (i.e. control of pumps, valves etc);

(e) spill containment procedures;

(f) procedures to safely recover the spilt material;

(g) clean up and rehabilitation procedures;

(h) requirements for the remediation or disposal of contaminated soil;

(i) personnel responsibilities;

(j) equipment requirements, location, storage, maintenance and transport;

(k) communications and logistics; and

(l) incident investigation procedures.

Condition 22

Workforce training must be conducted in spill response and recovery procedures.

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Condition 23 – Contaminant release

Contaminants that are likely to cause environmental nuisance, or serious or material environmental harm, must not be released directly or indirectly to land or **waters** unless explicitly authorised in the environmental authority.

Condition 24

As soon as the environmental authority holder is aware of any release to the environment specified in the preceding condition that is causing or threatening to cause environmental nuisance, or serious or material environmental harm, the release must be stopped, promptly rectified using appropriate equipment and remediation methods and all reasonable actions taken to prevent a recurrence of the release. Report in writing to the administering authority any findings and actions taken within 20 business days of that event.

Condition 25 – Bunding

Any container such as a tank or drum that contains material that has the potential to cause material or serious environmental harm if **released** to the environment must be appropriately labelled and be contained in a **bunded** area. Volumes of liquid less than 1000L may be stored without bunding if:

(a) recovery of any spilt material is possible;

(b) containers or drums are stored undercover on an impervious base;

(c) the storage is occurring at least 50m from any waters; and

(d) absorbent material is readily available for clean up if necessary.

Individual drums may be temporarily stored on spill containment pallets.

Condition 26

The net capacity of a bunded compound in a storage facility must be at least 110% of a single storage tank or 100% of the largest storage tank plus 10% of the second largest storage tank in multiple storage areas.

Condition 27

If an automatic fire sprinkler system is installed in or over any bunded tank or drum storage compound, the capacity of the on-site containment must be increased to include the output from the sprinkler system over a 20 minute period.

Condition 28

If the material to be bunded is contained in drums (or other small containers) the bunded area must contain at least 25% of the total volume of the stored product.

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Condition 29

The bund floor and wall must be built of materials impervious to the contents of any tank or container within the bund and be capable of preventing the migration of any spillage or leakage outside the bund wall to the environment.

Condition 30

Wall type bunds at tank storage facilities must be at least 0.5 metres high and not exceed 1.5 metres high. The distance between a tank and the bund wall must be at least 1 metre.

Condition 31

A collection sump must be provided in the bund floor and the floor must be graded in such a way that liquids collect in the sump. The sump must not be connected to a sewer drainage system or any waters.

Condition 32

The bund must be designed to minimise rainwater collection. Removal of accumulated rainwater must be done with a manually operated pump, baling from the sump or via a locked valve. Rainwater from the bund must meet water quality criteria for the intended use or receiving environment prior to release.

Condition 33

All pipework must be sited above ground and go over the bund walls where possible. Pumps must still be able to operate when the bund is full of liquid.

Condition 34

Piping and pumping facilities must be arranged so that the potential for leaks to escape the confines of the bund is minimised.

Condition 35 – Flammable and combustible liquids

Flammable and combustible liquids, including petroleum products, must be stored and handled in accordance with the latest edition of Australian Standard 1940 – The storage and handling of flammable and combustible liquids.

Condition 36 – Notification

The holder of this authority must:

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(a) telephone the DERM's Pollution Hotline (1300 130 372) or local office as soon as practicable, but within 24 hours, after becoming aware of any release of contaminants not in accordance with the conditions of this authority or any event where environmental harm has been caused or threatened; and

(b) notify the administering authority in writing within 14 days of the initial notification.

Condition 37 – Erosion and sediment control

Erosion protection and sediment control measures must be designed, implemented and maintained to minimise erosion and the release of sediment resulting from carrying out the petroleum activities.

Condition 38 – Protection of watercourses, wetlands and springs

Unless otherwise approved under relevant legislation, the holder of the environmental authority must not:

(a) excavate or place **fill** in a way that interferes with the flow of water in a watercourse, wetland, or spring, including: works that divert the course of flow of the water, or works that impound the water;

(b) undertake activities that take water from a watercourse, wetland or spring; or

(c) undertake activities that take **overland flow water** using works that are mentioned as assessable development in a water resource plan under the *Water Act 2000*.

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Condition 39 – Activities in a watercourse, wetland or spring

Significant disturbance to the **bed or banks** of a watercourse or wetland, or to a spring must:

(a) only be caused where necessary for the construction, operation and/or maintenance of roads, tracks and pipelines that are essential for carrying out other authorised petroleum activities and no reasonable alternative location is feasible; and

(b) be no larger than the minimum area necessary for the purpose; and

(c) be designed by an appropriately qualified person; and

(d) be undertaken and maintained by a person with appropriate skills who has been informed of the design and is appropriately supervised; and

(e) have rehabilitation commence as soon as reasonably practicable upon cessation of the relevant authorised petroleum activities.

Condition 40

Sediment control measures must be implemented to minimise any increase in water turbidity due to carrying out petroleum activities in the bed or banks of a watercourse or wetland, or in a spring.

Condition 41

Routine visual monitoring must be undertaken while carrying out petroleum activities in a watercourse, wetland or spring. If, due to the petroleum activities, water turbidity increases in the watercourse, wetland or spring outside contained areas, works must cease and the sediment control measures must be rectified before activities recommence.

Condition 42 – Management of dams

Only low hazard dams are authorised under this authority.

Condition 43

All **dams** must be designed, constructed, operated and maintained in accordance with **accepted engineering standards** currently appropriate for the purpose for which they are intended.

Condition 44

The **hazard category** of each dam must be determined by a **suitably qualified and experienced person** prior to its construction and at least once per year, based on documented evidence sufficient to define or confirm the current nature and extent of environmental consequences from potential failure of that dam.

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Condition 45

Where the hazard category of a dam is for the first time assessed as significant or high, the holder of the environmental authority must:

(a) as soon as reasonably possible, advise the administering authority of the current details of that dam, including:

  i. the assessed hazard category of that dam,

  ii. sufficient points of latitude and longitude in the current Australian geodetic datum to form a perimeter around that dam and its associated works,

  iii. the maximum surface area, maximum volume, maximum depth of that dam; and

(b) apply to amend the environmental authority to a level 1 environmental authority; and

(c) ensure that the dam meets the **hydraulic performance** required of the assessed hazard category within 12 months of that assessment.

Condition 46

The condition of all dams must be monitored for early signs of loss of structural or hydraulic integrity, based on the advice of a suitably qualified and experienced person. The methods of monitoring and

frequency of monitoring shall be as assessed by the person who conducts the hazard assessment based on the particular circumstances of each dam.

Condition 47

In the event of early signs of loss of structural or hydraulic integrity, the holder of the environmental authority must immediately take action to prevent or minimise any actual or potential environmental harm, and report in writing any findings and actions taken to the administering authority within 20 business days of that event.

Condition 48 – Decommissioning dams

Each dam must be decommissioned such that it either:

(a) becomes a **stable** landform that no longer contains **flowable substances**; or

(b) is approved or authorised under relevant legislation for a **beneficial use**; or

(c) is a void authorised by the administering authority to remain after decommissioning, or

(d) is compliant with the rehabilitation requirements of the authority; and

(e) is agreed by the post petroleum authority landowner/holder to remain after surrender of the environmental authority and meets water quality criteria for the intended use.

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Condition 49 – Access to dams

Any dam constructed as part of the petroleum activities must be managed so that either:

(a) where the quality of the water is likely to result in adverse health affects if contacted or consumed, adequate barriers are provided to limit access to the water by humans, livestock and native fauna; or

(b) where the quality of the water will not result in any adverse health affects if contacted or consumed, safe access to the water is provided for livestock and native fauna.

Condition 50 – Associated water

Associated water may be temporarily contained in a dam or other containment vessel on site prior to:

(a) reuse on site for petroleum activities; or

(b) use under the provisions of the *Petroleum and Gas (Production and Safety) Act 2004*; or

(c) use for an approved beneficial use; or

(d) removal from site for treatment or disposal at an appropriately authorised facility.

Condition 51

If the use of associated water for a purpose other than a petroleum activity has been authorised by grant of a Notice of decision to approve a resource for beneficial use under Part 6A of the *Environmental Protection (Waste Management) Regulation 2000* it can be used in accordance with the Notice for the stated type of use(s).

Condition 52 – Release of contaminants to the atmosphere

The release of **noxious** or **offensive** odour, dust, particulate matter or any other airborne contaminant resulting from the petroleum activities must not cause environmental nuisance at any sensitive place or commercial place.

Condition 53 – Noise management

If the environmental authority holder receives a complaint as defined in Condition 71 about noise from the petroleum activities at a **sensitive place** or **commercial place**, the holder must conduct an appropriate investigation and must implement remedial action if the noise from the petroleum activities exceeds the noise limits at the sensitive place or commercial place in Table 1 – Noise Limits.

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Table 1 – Noise limits

Sensitive place						
Noise level dB(A) measured as:	**Monday to Saturday**			**Sundays and public holidays**		
	7am to 6pm	**6pm to 10pm**	**10pm to 7am**	**9am to 6pm**	**6pm to 10pm**	**10pm to 9am**
$L_{A90, adj, 15 mins}$	lesser of bg+3 or 48	bg+0	bg+0	bg+0	bg+0	bg+0
$L_{A10, adj, 15 mins}$	lesser of bg+5 or 50	lesser of bg+5 or 45	bg+0	lesser of bg+5 or 45	lesser of bg+5 or 40	bg+0
$L_{A1, adj, 15 mins}$	lesser of bg+10 or 55	lesser of bg+10 or 50	lesser of bg+5 or 45	lesser of bg+10 or 50	lesser of bg+10 or 45	lesser of bg+5 or 40
Commercial place						
Noise level dB(A) measured as:	**Monday to Saturday**			**Sundays and public holidays**		
	7am to 6pm	**6pm to 10pm**	**10pm to 7am**	**9am to 6pm**	**6pm to 10pm**	**10pm to 9am**
$L_{A90, adj, 15 mins}$	lesser of bg+5 or 50	bg+0	bg+0	lesser of bg+3 or 43	bg+0	bg+0
$L_{A10, adj, 15 mins}$	lesser of bg+10 or 55	lesser of bg+10 or 50	lesser of bg+5 or 45	lesser of bg+10 or 50	lesser of bg+10 or 45	lesser of bg+5 or 40
$L_{A1, adj, 15 mins}$	lesser of bg+15 or 60	lesser of bg+15 or 55	lesser of bg+10 or 50	lesser of bg+15 or 55	lesser of bg+15 or 50	lesser of bg+10 or 45

- bg = **background noise level**
- In the event that measured bg is less than 25 dB(A), then 25 dB(A) is to be substituted for the measured level.
- If the background is higher than the number shown on the second line in any box, the limit is to be background plus 0.

Condition 54

The method of measurement and reporting of noise levels must comply with the latest edition of the Department of Environment and Resource Management's (Environmental Protection Agency's) Noise Measurement Manual or the most recent version of AS1055 Acoustics – Description and measurement of environmental noise.

Condition 55 – General waste management

Where practicable, general waste generated in carrying out the petroleum activities must be reused, recycled or removed to a facility that can lawfully accept the waste under the *Environmental Protection Act 1994*.

Condition 56

If no viable alternative exists, solid general waste may be disposed of on site at a facility designed to receive waste at a rate of less than 50t per year only if it is:

(a) disposed of into a waste disposal trench;

(b) consolidated, compacted and covered with a layer of inert material following placement of the waste into the trench;

(c) managed in a way that prevents scavenging and access by vermin;

(d) managed in a way that prevents or contains wind blown litter; and

(e) managed in a way that prevents or controls **leachate** generated from the activity.

Condition 57

Waste, including vegetation, must not be burnt.

Condition 58 – Regulated waste

Regulated waste must be removed and transported from the site by a person who holds a current authority to transport such wastes to a facility that is lawfully able to accept the waste under the *Environmental Protection Act 1994*.

Condition 59

Regulated waste generated in carrying out the petroleum activities can be temporarily stored on the site awaiting removal provided:

(a) it is stored in a place and circumstance in which there is minimal risk of causing contamination to land or waters or a fire hazard; and

(b) each container of regulated waste stored awaiting movement off site is clearly marked to identify the contents.

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Condition 60

A record of all regulated waste (excluding trackable waste) must be kept detailing the following information:

(a) date of pickup of waste;

(b) description of waste;

(c) quantity of waste;

(d) origin of waste; and

(e) destination of waste.

Condition 61 – Sewage

Disposal of sewage effluent must not cause environmental nuisance or material or serious environmental harm.

Condition 62

Sewage treatment works on the site must not exceed a combined peak design capacity to treat sewage of more than 21 **equivalent persons**.

Condition 63

Sewage effluent may be either temporarily directed to and stored in lined sewage effluent pit(s) for evaporation or stored in holding tank(s) prior to removal off site for disposal at a facility that is lawfully able to accept the waste.

Condition 64

Sewage effluent pit(s) must be constructed in accordance with the Santos Engineering Specification 1515-120-S007 *Construction of earthen bund evaporation or storage ponds* dated January 2006.

Condition 65

Sewage effluent pit(s) must be operated with 0.5m or greater of freeboard.

Condition 66

Sewage effluent pit(s) must be lined with polyethylene with a minimum thickness of 1mm.

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Condition 67

The integrity of the sewage effluent pit liner(s) must be monitored regularly and maintained as necessary to ensure no release of contaminants to the environment.

Condition 68

The sewage effluent pit(s) must be fenced and notices must be prominently displayed denying public access at all times.

Condition 69

Sewage effluent pit(s) must be decommissioned and rehabilitated within 12 months of the cessation of drilling activities at a drill camp site.

Condition 70 – Monitoring

The holder of the environmental authority must:

(a) develop a monitoring program that will demonstrate compliance with the conditions of the environmental authority;

(b) document monitoring and inspections carried out under the monitoring program and any actions taken; and

(c) record, compile and keep for a minimum of seven (7) years all monitoring results and data.

Condition 71 - Complaints

The holder of the environmental authority must:

(a) when the administering authority advises the holder of a complaint that the administering authority does not consider to be frivolous, vexatious or based on a mistaken belief alleging nuisance (e.g. caused by dust or noise), investigate the complaint and advise the administering authority of the action proposed or undertaken in relation to the complaint;

(b) if the administering authority is not satisfied with the proposed or completed action, undertake monitoring or other action requested by the administering authority; and

(c) maintain a record of complaints and incidents causing environmental harm and actions taken in response to the complaints or incidents for a minimum of seven (7) years.

Condition 72 - Rehabilitation

As soon as practicable after the **end** of petroleum activities that have caused significant disturbance to land, the holder of the environmental authority must:

(a) remediate contaminated land caused by petroleum activities in accordance with EP Act requirements and this authority; and

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(b) undertake works to establish a safe, **stable**, non polluting landform similar to that of surrounding undisturbed areas, including where relevant:

i. backfilling any **voids** and trenches;

ii. neutralising and /or encapsulating any acid producing or potentially acid producing material;

iii. removing or encapsulating in low permeability material saline residues from evaporation ponds;

iv. re-establishing surface drainage lines;

v. minimising the potential for slumping, subsidence or erosion;

vi. reinstating the top layer of the soil profile;

vii. respreading any cleared vegetation; and

viii. promoting establishment of vegetation of similar species composition and density of cover to the surrounding undisturbed land;

unless the holder has the written consent of the landowner/holder and the administering authority.

Condition 73 – Maintenance of land rehabilitation

Monitoring and maintenance of rehabilitated areas must take place to ensure and demonstrate:

(a) stability of landforms;

(b) erosion control measures remain effective;

(c) stormwater runoff and seepage from rehabilitated areas does not negatively affect the environmental values of any waters;

(d) plants show healthy growth and recruitment is occurring; and

(e) rehabilitated areas are free of any **declared pest plants.**

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Condition 74 – Rehabilitation Success

Rehabilitation can be considered successful when the site can be managed for its designated land-use (either similar to that of surrounding undisturbed areas or as otherwise agreed in a written document with the landowner/holder and administering authority) without any greater management input than for other land in the area being used for a similar purpose and there is evidence that the rehabilitation has been successful for at least three (3) years.

Condition 75 – Decommissioning pipelines

Decommission inactive buried pipelines by in-situ decommissioning (abandonment in place).

Condition 76

Prior to pipelines and equipment being disconnected they must be drained or vented and cleaned via purging or flushing.

Condition 77

Any water used for purging or flushing pipelines must be contained in dams on site, tested and either:

(a) directly reused where suitable for petroleum activities;

(b) treated so that it meets water quality criteria for the intended reuse; or

(c) removed from the site for disposal or treatment at an appropriately authorised facility; or

(d) disposed of via evaporation in a suitably lined pond.

Condition 78 – Infrastructure

All above ground **infrastructure** used for the petroleum activities must be removed prior to surrender of the environmental authority, except where it is to remain under the authority of the *Petroleum and Gas (Production and Safety) Act 2004*;, or with the written agreement of the administering authority and the post petroleum authority landowner/holder.

Condition 79 – Transition of petroleum authority

The holder of the environmental authority must take responsibility for the rehabilitation of any disturbance to land undertaken as part of a petroleum activity on a petroleum authority that has been transitioned (all or in part) due to the grant of a new petroleum authority over that land which now forms part of the current project.

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APPENDIX A – DEFINITIONS

Note: Where a term is not defined in this Authority, the definition in the *Environmental Protection Act 1994*, its regulations and Environmental Protection Policies or the *Petroleum and Gas (Production and Safety) Act 2004* and its regulations must be used in that order.

Accepted engineering standards, in relation to dams, means those standards of design, **construction**, operation and maintenance that are broadly accepted within the profession of engineering as being good practice for the purpose and application being considered. In the case of dams, the most relevant documents would be publications of the Australian National Committee on Large Dams (ANCOLD), guidelines published by Queensland government departments and relevant Australian and New Zealand Standards.

Administering authority means:

a) for a matter, the administration and enforcement of which has been devolved to a local government under section 514 of the *Environmental Protection Act 1994* – the local government; or
b) for all other matters – the Chief Executive of the Department of Environment and Resource Management; or
c) another State Government Department, Authority, Storage Operator, Board or Trust, whose role is to administer provisions under other enacted legislation.

Appropriately qualified person means a person who has professional qualifications, training, skills or experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis to performance relative to the subject matter using the relevant protocols, standards, methods or literature.

Archaeological artefact means:

(a) any artefact that is evidence of an aspect of Queensland's history, whether it is located in, on or below the surface of land, and not

(b) a thing that is Aboriginal cultural heritage under the *Aboriginal Cultural Heritage Act 2003* or Torres Strait Islander cultural heritage under the *Torres Strait Islander Cultural Heritage Act 2003*.

Archaeological investigation means a physical investigation of the place carried out by a person or persons with recognised qualifications, experience or standing in historical archaeology, mining history, cultural heritage management, or related discipline for the purpose of investigating, recording or conserving archaeological artefacts on the place.

Archaeological place means a place entered in the Queensland heritage register under Part 5 of the *Queensland Heritage Act 1992*.

Assessed or **assess** by a suitably qualified and experienced person in relation to a hazard assessment of a dam means that a statutory declaration has been made by that person and, when taken together with any attached or appended documents referenced in that declaration, all of the following aspects are addressed and are sufficient to allow an independent audit at any time:

(a) what has been assessed and the precise nature of that assessment;

(b) the relevant legislative, regulatory and technical criteria on which the assessment has been based;

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(c) the relevant data and facts on which the assessment has been based, the source of that material, and the efforts made to obtain all relevant data and facts; and

(d) the reasoning on which the assessment has been based using the relevant data and facts, and the relevant criteria.

Associated water means underground water taken or interfered with, if the taking or interference happens during the course of, or results from, the carrying out of another activity authorised under a petroleum authority, such as producing petroleum from a well, and includes water also known as produced formation water. The term includes all contaminants suspended or dissolved in the water.

Associated works in relation to a dam means:

(a) operations of any kind and all things constructed, erected or installed for that dam; and

(b) any land used for those operations.

Background noise level means the sound pressure level, measured in the absence of the noise under investigation, as the $L_{A90,T}$ being the A-weighted sound pressure level exceeded for 90 percent of the measurement time period T of not less than 15 minutes, using Fast response.

Bed and banks for a watercourse or wetland means land over which the water of the watercourse or wetland normally flows or that is normally covered by the water, whether permanently or intermittently; but does not include land adjoining or adjacent to the bed or banks that is from time to time covered by floodwater.

Beneficial use means:

1. with respect to dams, that the current or proposed owner of the land on which a dam stands, has found a use for that dam that is:

   (a) of benefit to that owner in that it adds real value to their business or to the general community,

   (b) in accordance with relevant provisions of the *Environmental Protection Act 1994*,

   (c) sustainable by virtue of written undertakings given by that owner to maintain that dam, and

   (d) the transfer and use have been approved or authorised under any relevant legislation; or

2. with respect to associated water, see Environmental Protection Agency's Operational Policy *Management of water produced in association with petroleum activities (associated water)* and *Notice of decision to approve a resource for beneficial use – associated water* which can be accessed on Department of Environment and Resource Management's website at www.derm.qld.gov.au.

Bund or bunded in relation to spill containment systems for fabricated or manufactured tanks or containers designed to a recognised standard means an embankment or wall of brick, stone, concrete or other impervious material which may form part or all of the perimeter of a compound and provides a barrier to retain liquid. Since the bund is the main part of a spill containment system, the whole system (or bunded area) is sometimes colloquially referred to within industry as the bund. The bund is designed to contain spillages and leaks from liquids used, stored or processed above ground and to facilitate clean-up operations. As well as being used to prevent pollution of the receiving environment, bunds are also used for fire protection, product recovery and process isolation.

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Certification or **certified** by a suitably qualified and experienced person in relation to a **design plan** or an annual report regarding dams, means that a statutory declaration has been made by that person and, when taken together with any attached or appended documents referenced in that declaration, all of the following aspects are addressed and are sufficient to allow an independent audit at any time:

(a) exactly what is being certified and the precise nature of that certification;

(b) the relevant legislative, regulatory and technical criteria on which the certification has been based;

(c) the relevant data and facts on which the certification has been based, the source of that material, and the efforts made to obtain all relevant data and facts; and

(d) the reasoning on which the certification has been based using the relevant data and facts, and the relevant criteria.

Clearing means:

(a) in relation to grass, scrub or bush - the removal of vegetation by disturbing root systems and exposing underlying soil (including burning), but does not include—

i the flattening or compaction of vegetation by vehicles if the vegetation remains living; or

ii the slashing or mowing of vegetation to facilitate access tracks; or

iii the clearing of noxious or introduced plant species; and

(b) in relation to trees - cutting down, ringbarking, pushing over, poisoning or destroying in any way.

Commercial place means a work place used as an office or for business or commercial purposes which is not part of the petroleum activities and does not include employees accommodation or public roads.

Construction in relation to a dam includes building a new dam and modifying or lifting an existing dam.

Cultural heritage significance means aesthetic, architectural, historical, scientific, social or other significance, to the present generation or past or future generations, as assessed against the following criteria:

(a) the place is important in demonstrating the evolution or pattern of Queensland's history;

(b) the place demonstrates rare, uncommon or endangered aspects of Queensland's cultural heritage;

(c) the place has potential to yield information that will contribute to an understanding of Queensland's history;

(d) the place is important in demonstrating the principal characteristics of a particular class of cultural places;

(e) the place is important because of its aesthetic significance;

(f) the place is important in demonstrating a high degree of creative or technical achievement at a particular period;

(g) the place has a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;

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(h) the place has a special association with the life or work of a particular person, group or organisation of importance in Queensland's history.

Dam means a land-based structure (including a **levee,** dyke or bund) or a void that is intended or used to contain, divert or control **flowable substances**, and includes any substances that are thereby contained or controlled by that land-based structure or void and **associated works**. However; a dam does *not* mean a fabricated or manufactured tank or container designed to a recognised standard, nor does a dam mean a land-based structure where that structure is designed to an Australian Standard such as a bund designed for spill containment to AS1940.

Declared pest plants are listed in Schedule 2 of the *Land Protection (Pest and Stock Route Management) Regulation 2003*.

Design plan is the documentation required to describe the physical dimensions of the dam, the materials and standards to be used for construction of the dam, and the criteria to be used for operating the dam. The documents must include design and investigation reports, specifications and certifications, together with the planned decommissioning and rehabilitation works and outcomes. A design plan may include 'as constructed' drawings.

Discharge area is an area in the landscape where the net movement of groundwater is out of the aquifer. This may be expressed by waterlogging where groundwater discharges at the soil surface because of seepage or salting because of evaporation.

Dispersible soils are structurally unstable soils that readily breakdown into their constituent particles in water (e.g. the clay material disintegrates into particles less than 2 microns across within 24 hours when soil crumbs are submerged in distilled water). These soils are also known as sodic soils and have a high percentage of sodium ions (in soluble or exchangeable form).

Ecosystem functioning means the interactions between and within living and non-living components of an ecosystem and generally correlates with the size, shape and location of an area of vegetation.

End means the stopping of the particular activity that has caused a significant disturbance in a particular area. It refers to, among other things, the end of a seismic survey or the end of a drilling operation. It does not refer to the end of all related activities such as rehabilitation. In other words, it does not refer to the 'completion' of the petroleum activity, the time at which the petroleum authority ends or the time that the land in question ceases to be part of an authority.

Equivalent person means an equivalent person as defined in Item 63 of Schedule 2 in the *Environmental Protection Regulation 2008*.

Evaporation pond means a dam specifically designed for the purpose of disposing of a liquid via evaporation.

Fill means any kind of material in solid form (whether or not naturally occurring) capable of being deposited at a place but does not include material that forms a part of, or is associated with, a structure constructed in a watercourse, wetland or spring including a bridge, road, causeway, pipeline, rock revetment, drain outlet works, erosion prevention structure or fence.

Financial assurance means a security deposit, either cash or a bank guarantee, held by the administering authority to cover the potential costs of preventing or minimising environmental harm from, or rehabilitating areas significantly disturbed by, the petroleum activities.

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Flowable substance means matter or a mixture of materials which can flow under conditions potentially affecting that substance. Constituents of a flowable substance can include water, other fluids or solids, or a mixture that includes water and any other fluids or solids either in solution or suspension.

Foreseeable future is the period used for assessing the total probability of an event occurring. Permanent structures and ecological sustainability should be expected to still exist at the end of a 150 year foreseeable future with an acceptably low probability of failure before that time.

Hazard in relation to a dam as defined means the potential for environmental harm resulting from the collapse or failure of the dam to perform its primary purpose of containing, diverting or controlling flowable substances.

Hazard category means the level of hazard (low, significant or high) assigned to a dam as a result of an assessment against tables and other criteria in *the Manual for Assessing Hazard Categories and Hydraulic Performance of Dams (Version 1.0, 2008)* published by the Environmental Protection Agency (Department of Environment and Resource Management) on its website.

Heritage place means any place that may be of **cultural heritage significance,** or any place with potential to contain **archaeological artefacts** that are an important source of information about Queensland's history.

High bank means the defining terrace or bank or, if no bank is present, the point on the active floodplain, which confines the average annual peak flows in a watercourse.

Highly erodible soils means very unstable soils that are generally described as Sodosols with hard-setting, fine sandy loam to silty clay loam surfaces (solodics, solodised solonetz and solonetz) or soils with a dispersible layer located less than 25cm deep or soils less than 25cm deep.

Hydraulic performance means the capacity of a **regulated dam** to contain or safely pass flowable substances based on a probability (AEP) of performance failure specified for the relevant hazard category in the *Manual for Assessing Hazard Categories and Hydraulic Performance of Dams (Version 1.0, 2008)* published by the Department of Environment and Resource Management on its website.

Infrastructure means water storage dams, roads and tracks, equipment, buildings and other structures built for the purpose and duration of the conduct of the petroleum activities, but does not include other facilities required for the long term management of the impact of those activities or the protection of potential resources. Such other facilities include dams other than water storage dams (e.g. evaporation ponds), pipelines and assets that have been decommissioned, rehabilitated and lawfully recognised as being subject to subsequent transfer with ownership of the land.

$L_{A90,\ adj,\ 15\ mins}$ means the A-weighted sound pressure level exceeded for 90 percent of the measurement time period of 15 minutes, adjusted for noise characteristics including tonality and impulsiveness and measured in the presence of the noise under investigation, using Fast Response.

$L_{A10,\ adj,\ 15\ mins}$ means the A-weighted sound pressure level exceeded for 10 percent of the measurement time period of 15 minutes, adjusted for noise character including tonality and impulsiveness and measured in the presence of the noise under investigation, using Fast Response.

$L_{A1,\ adj,\ 15\ mins}$ means the A-weighted sound pressure level exceeded for 1 percent of the measurement time period of 15 minutes, adjusted for noise character including tonality and impulsiveness and measured in the presence of the noise under investigation, using Fast Response.

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Leachate means a liquid that contains soluble, suspended or miscible contaminants likely to have been derived from material which is stored, processed or disposed of on site and which the liquid has passed through or emerged from, or is likely to have passed through or emerged from.

Levee means a dyke or bund that is designed only to provide for the containment and diversion of stormwater or flood flows from a contributing catchment, or containment and diversion of flowable materials resulting from unplanned releases from other works of infrastructure, during the progress of those stormwater or flood flows or those unplanned releases; and does not store any significant volume of water or flowable substances at any other times.

Limited regulated waste means any of the following regulated wastes, asbestos, clinical waste or quarantine waste that has been rendered non-infectious, fish processing waste, food processing waste, poultry processing waste, tyres or treatment tank sludge or residue produced in the carrying out of an activity in relation to sewage treatment and water supply activities.

Noxious means harmful or injurious to health or physical well being.

'Of concern' regional ecosystem means an 'of concern' regional ecosystem identified in the database maintained by the Department of Environment and Resource Management called 'Regional ecosystem description database' containing regional ecosystem numbers and descriptions. The database is available for inspection on the Department of Environment and Resource Management's website at www.epa.qld.gov.au/nature_conservation/biodiversity/regional_ecosystems/ .

Offensive means causing unreasonable offence or displeasure; is disagreeable to the sense; disgusting, nauseous or repulsive, other than trivial harm.

Overland flow water means water, including floodwater, flowing over land, otherwise than in a watercourse or lake:

(a) after having fallen as rain or in any other way; or

(b) after rising to the surface naturally from underground.

Permanent infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dams, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads, pipelines etc) which is to be left by agreement with the landowner.

Petroleum authority is:

(a) a 1923 Act petroleum tenure granted under the *Petroleum Act 1923*; or

(b) a petroleum authority granted under the *Petroleum and Gas (Production and Safety) Act 2004*; or

(c) a licence, permit, pipeline licence, primary licence, secondary licence or special prospecting authority granted under the *Petroleum (Submerged Lands) Act 1982*.

Regulated dam means any dam in the significant or high hazard category as assessed using the *Manual for Assessing Hazard Categories and Hydraulic Performance of Dams (Version 1.0, 2008)* published by the Department of Environment and Resource Management on its website.

Regulated waste means non-domestic waste mentioned in Schedule 7 of the *Environmental Protection Regulation 2008* (whether or not it has been treated or immobilised), and includes–

(a) for an element – any chemical compound containing the element; and

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(b) anything that has contained the waste.

Release of a contaminant into the environment includes:

(a) to deposit, discharge, emit or disturb the contaminant; and

(b) to cause or allow the contaminant to be deposited, discharged, emitted or disturbed; and

(c) to allow the contaminant to escape; and

(d) to fail to prevent the contaminant from escaping.

Sensitive place means:

(a) a dwelling (including residential allotment, mobile home or caravan park, residential marina or other residential premises, motel, hotel or hostel;

(b) a library, childcare centre, kindergarten, school, university or other educational institution;

(c) a medical centre, surgery or hospital;

(d) a protected area;

(e) a public park or garden that is open to the public (whether or not on payment of money) for use other than for sport or organised entertainment.

Significantly disturbed land or **significant disturbance to land** means land that is:

(a) contaminated land; or

(b) disturbed and human intervention is needed to rehabilitate it:

i to a state required under this authority; or

ii if the authority does not require the land to be rehabilitated to a particular state – to its state immediately before the disturbance.

Examples of a significant disturbance to land:

(a) areas where soil has been compacted, removed, covered, exposed or stockpiled;

(b) areas where vegetation has been removed or destroyed to an extent where the land has been made susceptible to erosion;

(c) areas where land use suitability or capability has been diminished;

(d) areas within a watercourse, wetland, or spring where petroleum activities have occurred causing the loss of habitat or a decline in ecological processes and requiring human intervention to restore or stabilise the disturbed area and/or protect the quality of the water downstream of the disturbance;

(e) areas submerged by waste or water;

(f) areas under temporary infrastructure. Temporary infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dams, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be removed after petroleum activities have ceased; or

(g) areas where land has become contaminated land and a suitability statement has not been issued.

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However, for the purpose of this authority the following areas are not significantly disturbed:

(a) areas off the petroleum authority (e.g. roads or tracks which provide access to the petroleum authority);

(b) areas previously significantly disturbed which have been rehabilitated to the administering authority's satisfaction;

(c) areas under permanent infrastructure (e.g. roads, bridges, buildings) as agreed by the administering authority and landholder;

(d) areas that were significantly disturbed prior to the grant of the petroleum authority, unless those areas are re-disturbed by the petroleum authority holder during the course of carrying out the petroleum activities or were conducted on a petroleum authority that was replaced by the current authority (e.g. through conditional surrender or the transition from an authority to prospect to a petroleum lease).

Site means the area within the petroleum authority or authorities to which the environmental authority relates.

Spring means the land to which water rises naturally from below the ground and the land over which the water then flows.

Stable in relation to land means landform dimensions are or will be stable within **tolerable limits** now and in the **foreseeable future**. Stability includes consideration of geotechnical stability, settlement and consolidation allowances, bearing capacity (trafficability), erosion resistance and geochemical stability with respect to seepage, leachate and related contaminant generation.

State heritage place means a place entered in the Queensland heritage register under Part 4 of the *Queensland Heritage Act 1992*.

Suitably qualified and experienced person in relation to dams means one who is a Registered Professional Engineer of Queensland (RPEQ) under the provisions of the *Professional Engineers Act 1988*, OR registered as a National Professional Engineer (NPER) with the Institution of Engineers Australia, OR holds equivalent professional qualifications to the satisfaction of the administering authority for the Act; AND the administering authority for the Act is satisfied that person has knowledge, suitable experience and demonstrated expertise in relevant fields, as set out below:

(a) knowledge of engineering principles related to the structures, geomechanics, hydrology, hydraulics, chemistry and environmental impact of dams; and

(b) a total of five (5) years of suitable experience and demonstrated expertise in the geomechanics of dams with particular emphasis on stability, geology and geochemistry; and

(c) a total of five (5) years of suitable experience and demonstrated expertise each, in three (3) of the following categories:

i investigation and design of dams;

ii construction, operation and maintenance of dams;

iii hydrology with particular reference to flooding, estimation of extreme storms, water management or meteorology;

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iv hydraulics with particular reference to sediment transport and deposition, erosion control, beach processes;

v hydrogeology with particular reference to seepage, groundwater;

vi solute transport processes and monitoring thereof;

vii dam safety.

"Suitably qualified and experienced person" – means a person:

a) holding a National Association of Testing Authorities (NATA) signatory; **or**
b) either;
   i. who is holder of a degree in Science or Applied Science conferred after due examination by a University or College of Advanced Education in Queensland; **or**
   ii. who is the holder of a degree in Science or Applied Science conferred after due examination by a University, College of Advanced Education or other Tertiary Education Institution outside Queensland and that is to be the like effect as a degree conferred by a University or College of Advanced Education in Queensland; **or**
   iii. who has corporate membership of the Royal Australian Chemical Institute; **and**
   iv. has gained at least three (3) years practical experience in chemical bacteriological or other specialist analysis to demonstrate the persons capacity to maintain a high level of performance in all aspects of the performance of the particular analysis; **or**
c) working under the direct supervision of person(s) mentioned in a) and b).

Thing means a material object without life or consciousness or some entity; object or creature which is not or cannot be specifically designated or precisely described.

Threatening processes are processes, features and actions that can have a detrimental effect upon the health and viability of an area of vegetation. For example, altered hydrology, land use practices, invasion by pest and weed species, land degradation, edge effects and fragmentation.

Tolerable limits means a range of parameters regarded as being sufficient to meet the objective of protecting relevant environmental values. For example, a range of settlement for a tailings capping, rather than a single value, could still meet the objective of draining the cap quickly, preventing pondage and limiting infiltration and percolation.

Topsoil means the surface (top) layer of a soil profile which is more fertile, darker in colour, better structured and supports greater biological activity than underlying layers. The surface layer may vary in depth depending on soil forming factors, including parent material, location and slope, but generally is not greater than about 300mm in depth from the natural surface.

Void means any man-made, open excavation in the ground (includes borrow pits, drill sumps, frac pits, flare pits, cavitation pits and trenches).

Waters includes all or any part of a creek, river, stream, lake, lagoon, pond, swamp, wetland, spring, unconfined surface water, unconfined water in natural or artificial watercourses, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and underground water.

Watercourse is a creek, river or stream

(a) in which water flows intermittently or permanently in a visibly defined channel, whether artificial, artificially improved or natural; and

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(b) that has evidence of biological dependence on any water that flows in the creek, river or stream or on the banks or bed.

Wetland means an area shown as a wetland on a 'Map of referable wetlands', a document approved by the chief executive (environment). A map of referable wetlands can be viewed at www.derm.qld.gov.au.

Wild river declaration is a statutory instrument under the *Wild Rivers Act 2005*. A declaration lists the relevant natural values to be preserved and delineates certain parts of the wild river area and the different constraints that may apply in these areas. With reference to environmental authorities for petroleum, each declaration also specifies conditions to be included in a new authority if the activity is to be located within the wild river area.

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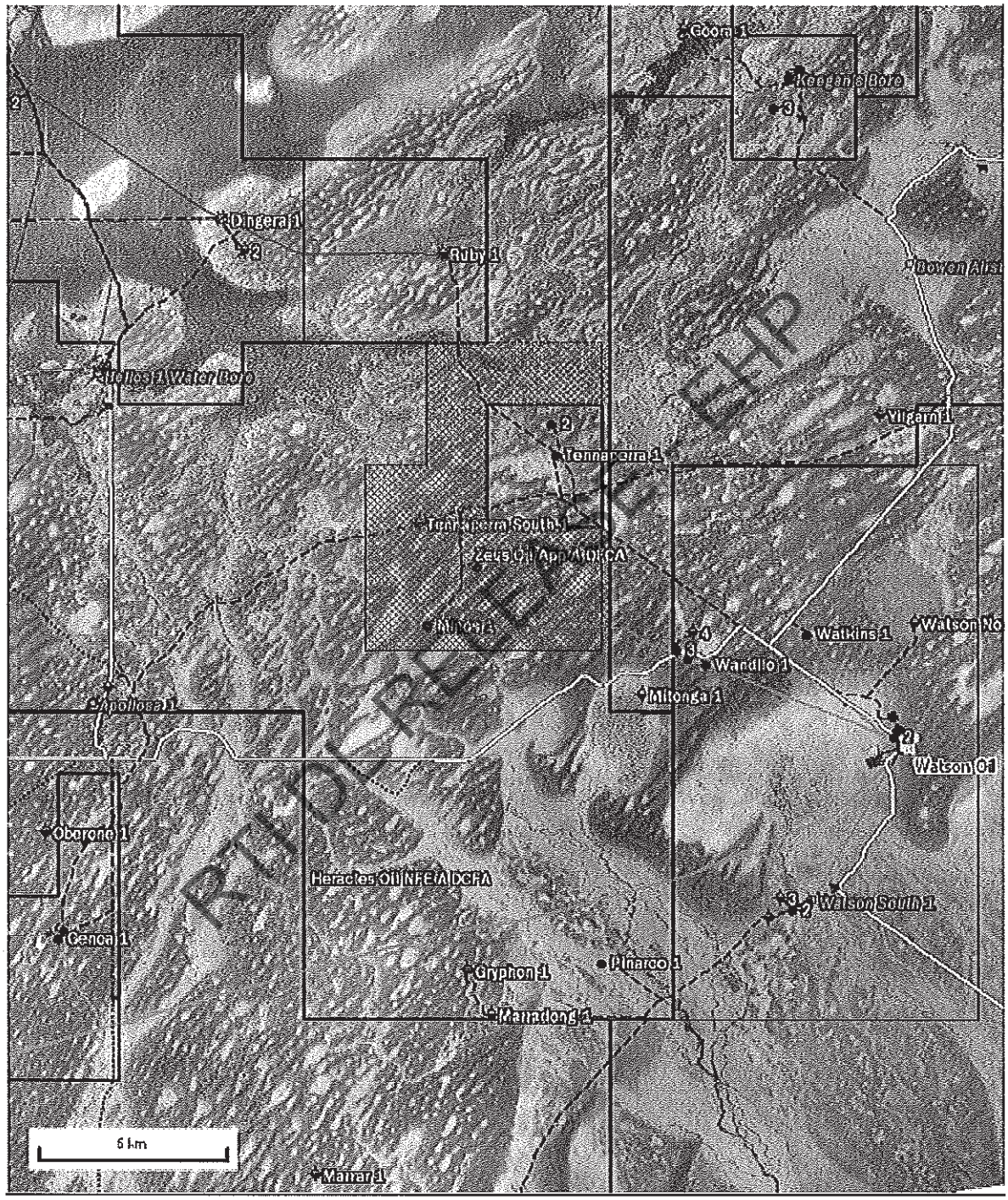
APPENDIX B – LOCALITY MAP OF PL301



APPENDIX C – ENVIRONMENTALLY SENSITIVE AREAS

Category A and Category B environmentally sensitive areas

Category A and Category B environmentally sensitive areas are listed in Section 25 and 26 respectively of the *Environmental Protection Regulation 2008*.

Category C environmentally sensitive areas

LAND AREA CLASSIFICATION	ADMINISTERING LEGISLATION	ADMINISTERING AUTHORITY
Nature Refuges and Resource Reserves	*Nature Conservation Act 1992*	Department of Environment and Resource Management
Koala Habitat Area	*Nature Conservation (Koala) Conservation Plan 2006*	Department of Environment and Resource Management
An area identified as essential habitat by the DERM for a species of wildlife listed as endangered, vulnerable, near threatened or rare under the *Nature Conservation Act 1992*	*Nature Conservation Act 1992*	Department of Environment and Resource Management
Declared Catchment Areas	*Water Act 2000*	Department of Environment and Resource Management and/or Relevant Storage Operator or Board
Former Designated Landscape Area - Stanbroke Pastoral Holding	*Aboriginal Cultural Heritage Act 2003*	Department of Environment and Resource Management
Areas under Part 5 Division 2 of the *Aboriginal Cultural Heritage Act 2003* and *Torres Strait Islander Cultural Heritage Act 2003*	*Aboriginal Cultural Heritage Act 2003* *Torres Strait Islander Cultural Heritage Act 2003*	Department of Environment and Resource Management
State Forest or Timber Reserves	*Forestry Act 1959*	Department of Environment and Resource Management
DPI Research Sites	*Nil*	Department of Employment, Economic Development and Innovation
Areas of land occupied by the Bureau of Sugar Experiment Stations.	*Sugar Industry Act 1999*	Department of Employment, Economic Development and Innovation
Coastal Management Districts	*Coastal Protection and*	Department of Environment and

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LAND AREA CLASSIFICATION	ADMINISTERING LEGISLATION	ADMINISTERING AUTHORITY
	Management Act 1995	Resource Management
Declared Areas	*Sections 17, 18 and 19a of the Vegetation Management Act 1999*	Department of Environment and Resource Management
An area shown as a wetland on a 'map of referable wetlands'	*Environmental Protection Act 1994*	Department of Environment and Resource Management
Reserves under the Land Act 1994	*Land Act 1994*	Department of Environment and Resource Management
An 'of concern' regional ecosystem identified in the database maintained by the EPA called 'Regional ecosystem description database' containing regional ecosystem numbers and descriptions.	*Nil*	Department of Environment and Resource Management

Important Note: Regional ecosystem classification is determined according to the Queensland Herbarium *Biodiversity Status Classification*. Information on ERE's is maintained by the DERM on the Regional Ecosystem Description Database.

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Annual return

Environmental authority

This annual return is relevant to environmental authorities for resource activities or prescribed environmentally relevant activities (ERAs) under sections 308 and 309 of the Environmental Protection Act 1994 *(EP Act).*

GUIDE

IMPORTANT: This is the period for which all of the questions within this return relate to.

If the anniversary day has changed you must ensure that there is no gap in reporting because of the change.

Please update principal holder details if incorrect by crossing out the details and printing the correct details beneath or attach them to your return.

Where there are multiple holders of an environmental authority, the department will send correspondence to the multiple holders care of the principal holder.

This information must be kept current as it is used for all ongoing correspondence in relation to your environmental authority.

If you require assistance in answering any part of this form, or have any questions about your application please contact Permit and Licence Management. Contact details are at the end of this form.

Annual return details

1. Annual return period

FROM	20-May-2011
TO	19-May-2012

2. Environmental authority details

ENVIRONMENTAL AUTHORITY NUMBER EPPG00383513	
ENVIRONMENTAL AUTHORITY HOLDERS NAMES Santos Limited, Delhi Petroleum Pty Ltd, Santos Petroleum Pty Ltd and Vamgas Pty Ltd	
PRINCIPAL HOLDER DETAILS	
REGISTERED ADDRESS 60 Flinders Street ADELAIDE SA 5000	POSTAL ADDRESS (IF DIFFERENT) s.73 Irrelevant information Santos Ltd, GPO Box 2455 ADELAIDE SA 5000
CONTACT PERSON s.73 Irrelevant information	PHONE s.73 Irrelevant information
FACSIMILE s.73 Irrelevant information	MOBILE
EMAIL s.73 Irrelevant information	

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3. Have any of the activities on your environmental authority been altered?

☐ Yes → Your environmental authority may need to be amended.

☑ No

Department of Environment and Heritage Protection
www.ehp.qld.gov.au ABN 46 640 294 485

Queensland Government

4. Have you fully complied with the conditions of your environmental authority (including if applicable the eligibility criteria and any standard conditions)?

☒ Yes

☐ No→ ☐ I/We have already provided all non-compliance information to the administering authority. No further documentation has been attached.

OR

☐ I/We have not yet provided non-compliance information and have attached the following documentation.

a) A statement describing the non-compliance/incident including photographs where appropriate.

b) A statement describing the environmental impacts resulting from the non-compliance/incident.

c) A statement describing the actions taken to repair any damage to the environment resulting from the non-compliance/incident.

d) Details of any monitoring data which exceeded any of the environmental limits set out in the environmental authority.

Management criteria for CSG water would have been provided as part of the environmental authority application.

5. Is the environmental authority for a resource activity for coal seam gas (CSG)?

☐ Yes→ ☐ I/We have attached the following documentation.

a) An evaluation of whether the management of CSG water has been effective when assessed against the management criteria.

b) If the evaluation (mentioned above), determines that water has not been effectively managed against the management criteria, also include details of the action that will be taken to ensure that the water will be effectively managed in the future, including timeframes for action.

☒ No

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If a plan of operations applies and financial years are used to align the plan this can be stated. Otherwise, state the period on which the plan is based (e.g. **Jan 2009 to Jan 2010**).

6. Is the environmental authority for a resource activity?

☒ Yes→ ☒ I/We have provided a summary of the onsite disturbance and rehabilitation in the table below based on the annual return period.

OR

☐ I/We have provided a summary of the onsite disturbance and rehabilitation in the table below based on a period which aligns with a plan of operations being _____to_____.

☐ No

Area of disturbance/rehabilitation (hectares)	Planned	Actual
Total area disturbed (including rehabilitated areas) during the period		11.13ha
Total area rehabilitated during the period		Oha
Total area remaining disturbed (not rehabilitated) at the end of the period		27.35ha

7. Is the environmental authority for a resource activity with a petroleum tenure, and an incidental activity under the *Petroleum and Gas (Production and Safety) Act 2004* has commenced?

☐ Yes→ ☐ I/We have attached the following documentation.

a) Details of the incidental activity carried out in the area of the authority to prospect or lease, including how the incidental activity will be carried out.

b) Details of the environmental risks of the incidental activity.

☒ No

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Declaration

Note: If you have not told the truth in this annual return you may be prosecuted.

- I/We, being the holders identified in question 2, acknowledge that all information supplied on or with this annual return may be made available upon request, subject to the provisions of the *Right to Information Act 2009* and the *Evidence Act 1977*.
- I am the holder of or the appointed signatory for the environmental authority.
- I am aware that under section 480 of the *Environmental Protection Act 1994*, it is an offence to knowingly give the administering authority information that I know is false, misleading or incomplete in any material particular.
- I have supplied all of the required information.

SIGNATURE s.73 Irrelevant information	
NAME OF SIGNATORY (IF APPLICABLE) s.73 Irrelevant information	
POSITION OF SIGNATORY (E.G. DIRECTOR, CEO, MANAGER, OWNER, PARTNER) Senior Environmental Adviser-SWQ	DATE

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Please return your completed annual return by 04-Feb-2014 to:

palm@ehp.qld.gov.au (preferred method)
OR
Permit and Licence Management
Department of Environment and Heritage Protection
GPO Box 2454
BRISBANE QLD 4001

Privacy statement

The department is committed to protecting the privacy, accuracy and security of your personal information in accordance with the *Information Privacy Act 2009*. The information is being collected in accordance with sections 308–309 of the *Environmental Protection Act 1994*. The information will only be accessed by authorised employees within the department. Some of this information may be given to the Department of Natural Resources and Mines for the purpose of the joint regulation of mining activities. Your information will not be given to any other person or agency unless you have given us permission or we are authorised or required by law. All information supplied on this form may be disclosed publicly in accordance with the *Right to Information Act 2009* and *Evidence Act 1977*. For queries about privacy matters email: **privacy@ehp.qld.gov.au** or telephone: (07) 3330 5436.

Applicant checklist

- ☐ Annual return signed and completed (all questions applicable are answered)
- ☐ Attachment 1—Reduced annual fee documentation attached (if applicable)
- ☐ Annual fee paid or enclosed

[1] The Department of Environment and Heritage Protection is the administering authority under the *Environmental Protection Act 1994*.

[2] A failure by the administering authority to give this notice 20 business days before each anniversary day for the environmental authority does not invalidate or otherwise affect the validity of the notice.

[3] These fees are included in the Federal Treasurer's Determination under Division 81 of *A New Tax System (Goods and Services Tax) Act 1999*. As such, the supplies are exempt from GST.

[4] This is the publication number, which can be used as a search term to find the latest version of the publication at **www.ehp.qld.gov.au**.

[5] Annual fees will apply as applicable under the regulation. Fees may not be applicable for all activities.

[6] Section 363E (Offence not to comply with a direction notice).

[7] Section 363I (Offence not to comply with clean-up notice).

[8] Section 363L (Obstruction of recipient complying with notice).

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Santos Ltd
ABN 80 007 550 923
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Adelaide South Australia 5000
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Adelaide South Australia 5001
Telephone: 61 8 8116 5000
Facsimile: 61 8 8116 5050
www.santos.com

Santos
We have the energy.

14 January 2013

Permit and Licence Management
Department of Environment and Heritage Protection
GPO Box 2454
BRISBANE QLD 4001

Dear Sir/Madam,

Re: Annual Fee and Return for Environmental Authority

In accordance with section 316 of the *Environmental Protection Act 1994*, please find attached Annual Returns covering the periods 2010-2011, 2011-2012 and 2012-2013 for the following Environmental Authority with receipt of payment included.

EPPG00383513 PL 301

Please note that the 'Planned' disturbance data was not calculated for Question 6 as the data was not available. Santos is currently developing an automated GIS tool to collate and report this data.

If you have any queries in relation to this matter please do not hesitate to contact s.73 Irrelevant information s.73 Irrelevant information

Regards,

s.73 Irrelevant information

Senior Environmental Advisor – Santos Ltd

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Annual return

Environmental authority

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Please update principal holder details if incorrect by crossing out the details and printing the correct details beneath or attach them to your return.

Where there are multiple holders of an environmental authority, the department will send correspondence to the multiple holders care of the principal holder.

This information must be kept current as it is used for all ongoing correspondence in relation to your environmental authority.

If you require assistance in answering any part of this form, or have any questions about your application please contact Permit and Licence Management. Contact details are at the end of this form.

Annual return details

1. Annual return period

FROM	20-May-2012
TO	19-May-2013

2. Environmental authority details

ENVIRONMENTAL AUTHORITY NUMBER EPPG00383513	
ENVIRONMENTAL AUTHORITY HOLDERS NAMES Santos Limited, Delhi Petroleum Pty Ltd, Santos Petroleum Pty Ltd and Vamgas Pty Ltd	
PRINCIPAL HOLDER DETAILS	
REGISTERED ADDRESS 60 Flinders Street ADELAIDE SA 5000	POSTAL ADDRESS (IF DIFFERENT) s.73 Irrelevant information Santos Ltd, GPO Box 2455 ADELAIDE SA 5000
CONTACT PERSON s.73 Irrelevant information	PHONE s.73 Irrelevant information
FACSIMILE s.73 Irrelevant information	MOBILE
EMAIL s.73 Irrelevant information	

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3. Have any of the activities on your environmental authority been altered?

☐ Yes → Your environmental authority may need to be amended.

☒ No

Department of Environment and Heritage Protection
www.ehp.qld.gov.au ABN 46 640 294 485

Queensland Government

4. Have you fully complied with the conditions of your environmental authority (including if applicable the eligibility criteria and any standard conditions)?

☒ Yes

☐ No→ ☐ I/We have already provided all non-compliance information to the administering authority. No further documentation has been attached.

OR

☐ I/We have not yet provided non-compliance information and have attached the following documentation.

a) A statement describing the non-compliance/incident including photographs where appropriate.

b) A statement describing the environmental impacts resulting from the non-compliance/incident.

c) A statement describing the actions taken to repair any damage to the environment resulting from the non-compliance/incident.

d) Details of any monitoring data which exceeded any of the environmental limits set out in the environmental authority.

Management criteria for CSG water would have been provided as part of the environmental authority application.

5. Is the environmental authority for a resource activity for coal seam gas (CSG)?

☐ Yes→ ☐ I/We have attached the following documentation.

a) An evaluation of whether the management of CSG water has been effective when assessed against the management criteria.

b) If the evaluation (mentioned above), determines that water has not been effectively managed against the management criteria, also include details of the action that will be taken to ensure that the water will be effectively managed in the future, including timeframes for action.

☒ No

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If a plan of operations applies and financial years are used to align the plan this can be stated. Otherwise, state the period on which the plan is based (e.g. **Jan 2009 to Jan 2010**).

6. Is the environmental authority for a resource activity?

☒ Yes→ ☒ I/We have provided a summary of the onsite disturbance and rehabilitation in the table below based on the annual return period.

OR

☐ I/We have provided a summary of the onsite disturbance and rehabilitation in the table below based on a period which aligns with a plan of operations being _____to_____.

☐ No

Area of disturbance/rehabilitation (hectares)	Planned	Actual
Total area disturbed (including rehabilitated areas) during the period		17.6ha
Total area rehabilitated during the period		0ha
Total area remaining disturbed (not rehabilitated) at the end of the period		44.9ha

7. Is the environmental authority for a resource activity with a petroleum tenure, and an incidental activity under the *Petroleum and Gas (Production and Safety) Act 2004* has commenced?

☐ Yes→ ☐ I/We have attached the following documentation.

a) Details of the incidental activity carried out in the area of the authority to prospect or lease, including how the incidental activity will be carried out.

b) Details of the environmental risks of the incidental activity.

☒ No

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Declaration

Note: If you have not told the truth in this annual return you may be prosecuted.

- I/We, being the holders identified in question 2, acknowledge that all information supplied on or with this annual return may be made available upon request, subject to the provisions of the *Right to Information Act 2009* and the *Evidence Act 1977*.
- I am the holder of or the appointed signatory for the environmental authority.
- I am aware that under section 480 of the *Environmental Protection Act 1994*, it is an offence to knowingly give the administering authority information that I know is false, misleading or incomplete in any material particular.
- I have supplied all of the required information.

SIGNATURE s.73 Irrelevant information	
NAME OF SIGNATORY (IF APPLICABLE) s.73 Irrelevant information	
POSITION OF SIGNATORY (E.G. DIRECTOR, CEO, MANAGER, OWNER, PARTNER) Senior Environmental Adviser - SWQ	DATE

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Please return your completed annual return by 05-Feb-2014 to:

palm@ehp.qld.gov.au (preferred method)
OR
Permit and Licence Management
Department of Environment and Heritage Protection
GPO Box 2454
BRISBANE QLD 4001

Privacy statement

The department is committed to protecting the privacy, accuracy and security of your personal information in accordance with the *Information Privacy Act 2009*. The information is being collected in accordance with sections 308–309 of the *Environmental Protection Act 1994*. The information will only be accessed by authorised employees within the department. Some of this information may be given to the Department of Natural Resources and Mines for the purpose of the joint regulation of mining activities. Your information will not be given to any other person or agency unless you have given us permission or we are authorised or required by law. All information supplied on this form may be disclosed publicly in accordance with the *Right to Information Act 2009* and *Evidence Act 1977*. For queries about privacy matters email: **privacy@ehp.qld.gov.au** or telephone: (07) 3330 5436.

Applicant checklist

- ☐ Annual return signed and completed (all questions applicable are answered)
- ☐ Attachment 1—Reduced annual fee documentation attached (if applicable)
- ☐ Annual fee paid or enclosed

[1] The Department of Environment and Heritage Protection is the administering authority under the *Environmental Protection Act 1994*.

[2] A failure by the administering authority to give this notice 20 business days before each anniversary day for the environmental authority does not invalidate or otherwise affect the validity of the notice.

[3] These fees are included in the Federal Treasurer's Determination under Division 81 of *A New Tax System (Goods and Services Tax) Act 1999*. As such, the supplies are exempt from GST.

[4] This is the publication number, which can be used as a search term to find the latest version of the publication at **www.ehp.qld.gov.au**.

[5] Annual fees will apply as applicable under the regulation. Fees may not be applicable for all activities.

[6] Section 363E (Offence not to comply with a direction notice).

[7] Section 363I (Offence not to comply with clean-up notice).

[8] Section 363L (Obstruction of recipient complying with notice).

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s.73 Irrelevant information

s.73 Irrelevant information

s.73 Irrelevant information

s.73 Irrelevant information

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4. Have you fully complied with the conditions of your environmental authority (including if applicable the eligibility criteria and any standard conditions)?

☑ Yes

☑ No→ ☑ I/We have already provided all non-compliance information to the administering authority. No further documentation has been attached.

OR

☐ I/We have not yet provided non-compliance information and have attached the following documentation.

a) A statement describing the non-compliance/incident including photographs where appropriate.

b) A statement describing the environmental impacts resulting from the non-compliance/incident.

c) A statement describing the actions taken to repair any damage to the environment resulting from the non-compliance/incident.

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☐ Yes→ ☐ I/We have attached the following documentation.

a) An evaluation of whether the management of CSG water has been effective when assessed against the management criteria.

b) If the evaluation (mentioned above), determines that water has not been effectively managed against the management criteria, also include details of the action that will be taken to ensure that the water will be effectively managed in the future, including timeframes for action.

☑ No

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If a plan of operations applies and financial years are used to align the plan this can be stated. Otherwise, state the period on which the plan is based (e.g. **Jan 2009 to Jan 2010**).

6. Is the environmental authority for a resource activity?

☑ Yes→ ☑ I/We have provided a summary of the onsite disturbance and rehabilitation in the table below based on the annual return period.

OR

☐ I/We have provided a summary of the onsite disturbance and rehabilitation in the table below based on a period which aligns with a plan of operations being _____to_____.

☐ No

Area of disturbance/rehabilitation (hectares)	Planned	Actual
Total area disturbed (including rehabilitated areas) during the period		7ha
Total area rehabilitated during the period		0ha
Total area remaining disturbed (not rehabilitated) at the end of the period		45.1ha

7. Is the environmental authority for a resource activity with a petroleum tenure, and an incidental activity under the *Petroleum and Gas (Production and Safety) Act 2004* has commenced?

☐ Yes→ ☐ I/We have attached the following documentation.

a) Details of the incidental activity carried out in the area of the authority to prospect or lease, including how the incidental activity will be carried out.

b) Details of the environmental risks of the incidental activity.

☑ No

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s.73 Irrelevant information

s.73 Irrelevant information

Senior Environmental Adviser

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[2] A failure by the administering authority to give this notice 20 business days before each anniversary day for the environmental authority does not invalidate or otherwise affect the validity of the notice.

[3] These fees are included in the Federal Treasurer's Determination under Division 81 of *A New Tax System (Goods and Services Tax) Act 1999*. As such, the supplies are exempt from GST.

[4] This is the publication number, which can be used as a search term to find the latest version of the publication at **www.ehp.qld.gov.au**.

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[6] Section 363E (Offence not to comply with a direction notice).

[7] Section 363I (Offence not to comply with clean-up notice).

[8] Section 363L (Obstruction of recipient complying with notice).

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Plan of Operations – South West Queensland

Author:

Title	Name	Signature	Date
Technical Assistant	s.73 Irrelevant information		27/09/13

Checked by:

Title	Name	Signature	Date
Senior Environmental Adviser	s.73 Irrelevant information		27/09/13

Approved by:

Title	Name	Signature	Date
Manager Cooper Basin Oil (Delegated Authority for Oil and Gas Operations)	s.73 Irrelevant information		30/9/13

Date	Rev	Reason For Issue	Author	Checked	Approved
30/09/2013	1.0	Final	TO	CW	JG

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1. PURPOSE AND SCOPE

The following document provides a plan of operations for Santos' petroleum activities within South West Queensland (SWQ). This plan of operations has been prepared in accordance with Section 288 of the *Environmental Protection Act 1994* (EP Act), with reference to the 'Guideline for Preparing a Plan of Operations for an Environmental Authority relating to a Petroleum Lease' dated 25 March 2013. Table 1 details where the requirements of Section 288 of the EP Act have been addressed within this document.

The purpose of this plan of operations is to:

- Describe all relevant activities that will take place in the area during the period of the plan
- Propose an action program for complying with the conditions of the Environmental Authorities (EAs)
- Present a rehabilitation program for significantly disturbed or proposed to be significantly disturbed land during the period of the plan in accordance with both the conditions of EAs and s288 of the EP Act; and
- Calculate the maximum Financial Assurance (FA) for the area during the period of the plan.

In consultation with the Department of Environment and Heritage Protection (DEHP), Santos is in the process of applying for new amalgamated EAs for SWQ. Therefore, this plan of operations has been developed on the basis that a more comprehensive plan will be provided following the grant of the new EAs.

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Table 1 Plan of Operations Requirements – s288 of the EP Act

s288 of the EP Act – Requirements for plan of operations	Relevant section within this Plan of Operations
(1) A plan of operations must-	Section 2.1
(a) Describe the following-	
(i) Each relevant lease for the environmental authority;	
(ii) The land to which each relevant lease applies;	Section 2.2
(iii) The land to which the plan applies; and	Section 2.2
(b) State the period to which the plan applies (the plan period); and	Section 1.1
(c) Include the following-	Section 3
(i) a plan showing where all activities are to be carried out on the land;	
(ii) an action program for complying with the conditions of the environmental authority;	Section 4
(iii) a rehabilitation program for land disturbed or proposed to be disturbed under each relevant lease;	Section 5
(iv) another matter prescribed under an environmental protection policy or a regulation; and	N/A
(d) Be accompanied by a compliance statement for the plan; and	Section 6
(e) Be accompanied by the fee prescribed under a regulation.	N/A
(2) A rehabilitation program under subsection (1)(c)(iii) must state a proposed amount of financial assurance for the environmental authority for the plan period.	Section 5.3
(3) A compliance statement under subsection (1)(d) must-	Section 6
(a) Be made by or for the environmental authority holder; and	
(b) State the extent to which the plan complies with the conditions of the environmental authority; and	
(c) State whether or not the amount of the financial assurance for the environmental authority has been calculated in accordance with the guideline under section 295(3)(b).	Section 6
(4) The plan period cannot be more than 5 years.	Section 1.1
(5) A plan of operations may relate to 1 or more relevant leases.	Section 2

Release

1.1. Term of the Plan of Operations

The term of this plan of operations is 1 year and 3 months. The expiry date of the plan is 31 December 2014.

2. DESCRIPTION OF LAND

2.1. Petroleum Leases, Authorities to Prospect and Environmental Authorities

This plan of operations applies to all of the petroleum leases (PLs) within Santos Ltd Cooper Basin areas as provided in Table 2 and shown in Appendix B. Current Environmental Authorities (EAs) for each relevant PL are provided in Table 2[1].

Table 2 Santos Cooper Basin Petroleum Leases

Environmental Authority	Relevant Petroleum Lease(s)
EPPG00980113 (formerly PEN100046407)	PL23, PL24, PL25, PL26, PL29, PL34, PL35, PL36, PL37, PL38, PL39, PL52, PL55, PL57, PL58, PL59, PL60, PL61, PL62, PL63, PL68, PL75, PL76, PL77, PL78, PL81, PL83, PL84, PL85, PL86, PL88, PL96, PL97, PL105, PL106, PL107, PL108, PL109, PL110, PL111, PL112, PL113, PL114, PL129, PL130, PL131, PL132, PL133, PL134, PL135, PL136, PL137, PL138, PL139, PL140, PL141, PL142, PL143, PL144, PL145, PL146, PL147, PL148, PL149, PL150, PL153, PL154, PL157, PL158, PL159, PL168, PL169, PL170, PL175, PL186, PL205, PL207, PL208, PL409 & PL410
EPPG00653513 (formerly PEN100084007)	PL33, PL50, PL51, PL244, PL245
PEN200054807	PL117
EPPG00382813 (formerly PEN200767410)	PL295
EPPG00715013 (formerly PEN204275712)	PL303
PEN200031407	PL177
PEN200054007	PL254
EPPG00383613 (formerly PEN200748310)	PL249
EPPG00407213 (formerly PEN201029710)	PL80
PEN200031207	PL156
PEN200070107	PL151
PEN200031007	PL152
PEN200031107	PL155
PEN200046907	PL79
EPPG00303613 (formerly PEN200032107)	PL181
EPPG00641613 (formerly PEN201644210)	PL302
EPPG00322013 (formerly PEN200030907)	PL189
EPPG00303713 (formerly PEN200032207)	PL182
PEN200054107	PL255
PEN200031507	PL178
PEN200032807	PL193
PEN200033807	PL241
EPPG00383513 (formerly PEN200748210)	PL301
PEN200032607	PL187
EPPG00757313 (formerly PEN202693011)	PL411
EPPG00572513 (formerly PEN202355311)	PL460

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[1] Current as of 1 October 2013

Release

2.2. Description of the Land to which each Petroleum Lease and this Plan of Operations Applies

The figures in Appendix B show the location of lots, commercial places and places of interest within Santos PLs in the Cooper Basin SWQ. Table 3 describes attributes of the land within the Cooper Basin, including endangered species and discussion of the local climate, land uses and ecosystems. Environmentally sensitive areas, land systems and watercourses are also shown on maps in Appendix B.

Table 3 Descriptions of the land to which this Plan of Operations applies

Attribute	Description
Endangered Species	***Flora:*** *Xerothamnella parvifolia, rhaphidospora bonneyana, hydrocotyle dipleura, atriplex morrisii, euphorbia sarcostemmoides, indigofera oxyrachis, myriophyllum artesium, acacia ammophila, melaleuca kunzeoides, grevillea kennedyana and hakea maconochieana* ***Fauna:*** Red Goshawk, Major Mitchell's Cockatoo, Grey Grasswren, Yellow Chat (gulf), Painted Honeyeater, Plains-Wanderer, Night Parrot, Australian painted snipe, Ghost Bat, Bridled nailtail wallaby and Greater bilby, Dusky Hopping-Mouse, Kowari, Brigalow scaly-foot
Local climate	Low average rainfall (approximately 285.7mm/year[2]), high evaporation rates. Seasons are generally hot dry summers and mild dry winters.
Ecosystems	The Cooper Basin SWQ lies in the Channel Country regional ecosystem.
Land systems	There are 11 broad land systems found within the Cooper Basin SWQ: 1. Alluvial Plains, Woodlands; 2. Channel Country; 3. Dissected Residuals; 4. Gibber Plains; 5. Hard Mulga Lands; 6. Other Alluvia; 7. Soft Mulga Lands; 8. Undulating Downs; 9. Undulating Gidgee Lands; 10. Miscellaneous 11. Dunefields; These are described in more detail in Appendix A.
Cultural Heritage	A number of sites of cultural heritage significance (both Aboriginal and European) are found within SWQ. These are either listed in the Register of the National Estate (RNE) and/or the Queensland Heritage Register.
Land Uses	Primarily pastoral with oil and gas production. Primarily comprises beef production on cleared paddocks with unimproved native pasture species. Kangaroo skins are also sold for tanning and the production of high quality leather, while the carcasses are sold for manufacture into pet food.

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[2] BOM 2010

3. EXISTING AND PROPOSED ACTIVITIES

Maps in Appendix B show where the following existing and proposed activities are to be carried out.

- Dams
- Wells
- Water and gas flow lines
- Power lines
- Gas processing facilities
- Water treatment facilities
- Sewage treatment plants
- Compressor stations
- Tracks and roads

4. ACTION PROGRAM

Santos' compliance with the conditions of Environmental Authorities in SWQ is governed by internal Environmental Hazard Standards (EHS) and Environment Health and Safety Management Standards (EHSMS) and associated procedures, processes and tools.

The standards relevant to this plan of operations include:

- EHSMS02 – Legal Obligations and Other Requirements
- EHSMS09 – Hazard Identification, Risk Assessment and Control
- EHSMS09.5 – Environmental Impact Assessment and Approvals
- EHSMS11 – Operations Integrity
- EHSMS13 – Emergency Preparedness
- EHSMS14 – Monitoring, Measurement and Reporting
- EHSMS15 – Incident Investigation and Response
- EHSMS15.2 – Environmental Incident Response
- EHSMS16 – Management System Audit and Review
- EHS01 – Biodiversity and Land Disturbance
- EHS02 – USTs and Bunds
- EGS03 – Produced Water
- EHS04 – Waste
- EHS05 – Air Emissions
- EHS07 – Energy Efficiency
- EHS08 – Contaminated Sites
- EHS09 – Pest Plants and Animals
- EHS10 – Water Resources
- EHS11 – Cultural Heritage
- EHS12 – Noise Emissions
- EHS13 – Environmental Impact Assessment and Approvals

These standards are developed to ensure compliance with conditions of Environmental Authorities and relevant legislation. EHS and EHSMS standards are reviewed and updated periodically to ensure that they meet current legislative requirements.

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5. REHABILITATION PROGRAM

A detailed schedule of disturbances and rehabilitation activities is not provided in this plan of operations and will be addressed via conditions in, and the plan of operations that will follow, the new amalgamated EAs currently being applied for[3].

Santos will adhere to the following guidelines for rehabilitation during the period that this plan of operations applies:

- Rehabilitation of seismic lines will take place at the time of the seismic survey.
- Rehabilitation of buried pipelines will occur as soon as practicable, but no later than 3 months, after the pipeline is deemed no longer required for the ongoing conduct of petroleum activities.
- Pipeline trenches will be backfilled immediately after pipe laying and rehabilitation commenced as soon as practicable, but not later than three months, after completion.
- All other rehabilitation will be commenced as soon as is practicable, but no later than nine months, after the infrastructure is deemed no longer required for the ongoing conduct of petroleum activities. This includes:
    - Wells and well sites;
    - Processing and associated facilities;
    - Evaporation ponds;
    - Waste management areas and landfarms; and
    - Roads, access tracks and associated borrow pits

Rehabilitation will be undertaken with reference to the methodologies detailed in Table 4.

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Table 4 Rehabilitation Methodologies

Activity /Facility	Planning Considerations	Surface Preparation and Site Contouring	Drainage and Erosion Control	Revegetation
Seismic	Erosion control; barriers to restrict public access; visual impacts	Replace cuttings and debris from shotholes; seal and level excess materials; install traffic barriers of natural materials at road crossings as required	Re-establish natural drainage; install diversion berms on long slopes	Create roughened surface by gouging or scarifying; re-spread cut brush and compact with bulldozer if necessary to promote seedling establishment
Well Sites (including temporary camp sites)	Assisted revegetation may be required to encourage establishment of native vegetation; visual impacts	Strip surface gravels for reuse or bury in cut to prevent surface exposure; recontour according to end land use; round-off cut slopes to smooth transition; decompact by ripping; respread topsoil	Re-establish natural drainage; install diversion berms on long slopes; terraces on cut slopes as required	Create roughened surface by gouging or scarifying to promote seedling establishment

[3] See also Section 1

Release

Activity /Facility	Planning Considerations	Surface Preparation and Site Contouring	Drainage and Erosion Control	Revegetation
Pipelines	Erosion control; stream crossings; subsidence; encouragement of natural revegetation from edge vegetation communities; barriers to restrict public access; visual impacts	Backfill trenches and compact; mound to allow for settling; grade cut and fill slopes to conform to adjacent terrain; install traffic barriers of natural materials at road crossings as required; respread topsoil	Re-establish natural drainage; install diversion berms on long slopes	Create roughened surface by gouging or scarifying to promote seedling establishment
Roads, Airstrips	Erosion control; barriers to restrict public access; visual impacts	Strip surface gravels for reuse; remove culverts; recontour according to end land use; round-off cut slopes to smooth transition; decompact by ripping; respread topsoil	Re-establish natural drainage; install diversion berms on long slopes; terraces on cut slopes as required	Create roughened surface by gouging, scarifying to promote seedling establishment
Pits (including borrow pits) and evaporation ponds	Safety hazards; subsidence; potential use as wildlife habitat or water source	Recontour according to end land use; round-off cut slopes to smooth transition; decompact by ripping; respread topsoil (if present)	Install diversion berms and terraces to prevent erosion	Leave roughened surface to promote seedling establishment
Facilities	Assisted revegetation may be required to encourage establishment of native vegetation; visual impacts	Strip surface gravels for reuse or bury in cut to prevent surface exposure; recontour according to end land use; round-off cut slopes to smooth transition; decompact by ripping; respread topsoil	Re-establish natural drainage; install diversion beams on long slopes; terraces on cut slopes as required	Create roughened surface by gouging or scarifying to promote seedling establishment; if necessary, seed, fertilise, mulch and plant as required for end land use

Rehabilitation monitoring will be undertaken on a yearly basis, as required by the Environmental Authorities. Rehabilitation completion criteria are presented in Table 5 below.

Table 5 Rehabilitation Completion Criteria

Petroleum Activity Feature	Rehabilitation Goal	Rehabilitation Objectives	Indicators	Completion Criteria
Land Disturbances	1. Safe	(a) Site safe for humans and animals	(a) Landform re-established	(a) No subsidence or major erosion gullies
	2. Non-polluting	(a) Sediment and erosion control structures in place (b) Storm water runoff does not pollute nearby watercourses	(a) Sediment traps and design of erosion control measures (b) Representative surface water monitoring	(a) Certification from suitably qualified and experienced person on performance of control structures (b) Monitoring and meeting release limits
	3. Stable	(a) Minimise erosion	(a) Re-establish surface drainage lines (b) Vegetation cover	(a) No subsidence of areas of major erosion for at least 3 years (b) 50% foliage cover recorded over a period of 5 years
	4. Self-	(a) Achieve post	(a) Species	(a) Certification that

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Petroleum Activity Feature	Rehabilitation Goal	Rehabilitation Objectives	Indicators	Completion Criteria
	sustaining	activity land use or land suitability or land capability	diversity (b) Presence of key species	50% species diversity achieved and maintained for 5 years (b) Certification that key species present over a period of 5 years

5.1. Proposed Financial Assurance

As previously agreed with DEHP, revisions to financial assurance for Santos' SWQ operations will be proposed during the process of obtaining and implementing the new amalgamated EAs[4]. Existing financial assurance will be maintained until the implementation of the amalgamated EAs. Financial assurance will be recalculated at this time.

6. COMPLIANCE STATEMENT

Based on the information currently available and subject to the exceptions noted below, Santos' petroleum activities in SWQ are in compliance with the respective Environmental Authorities.

- Santos has entered into a Transitional Environmental program under section 332 of the Environmental Protection Act 1994. The objective of this program is to achieve compliance with conditions of Environmental Authority EPPG00980113 (formerly PEN100046407) by taking reasonable and practicable measures to minimise the risk of environmental harm from unauthorised releases of oil and produced water to land and/or waters from Santos' SWQ oil operations. The action plan will be completed by the end of 2014.
- Spill incidents (i.e. unauthorised releases of contaminants) do occur from time to time and are reported to DEHP as per the requirements of the respective Environmental Authority and the EP Act.
- On 12 December 2012, Santos notified DEHP of the presence of dissolved phase hydrocarbons in groundwater beneath the Epsilon interceptor pond. The risk posed by the low concentrations of dissolved phase hydrocarbons is considered negligible and Santos proposes that no remediation of the shallow groundwater is required at Epsilon interceptor pond at this time. Santos is however in the process of developing a Cooper Basin wide ecological sensitivity profile (ESP). If the output from this assessment suggests a higher sensitivity than is indicated by currently available information, Santos will reassess the need for further assessment and remediation at this site. The tool will also be used to understand if and when any other existing infrastructure requires upgrading based on the location of the infrastructure in relation to environmental sensitivity and the potential for unacceptable environmental harm.
- On 1 June 2012, Santos notified DEHP that the release limits specified in Schedule B Table 1 of PEN10046407 are unachievable. It is impractical, and in some cases impossible, to modify equipment or operating practices to meet all of the specifications in the Table and there is no environmental or community benefit afforded by the problematic specifications. Accordingly, Santos intends addressing these specifications in the new amalgamated EAs.

[4] See also Section 1

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As previously discussed with DEHP, revisions to financial assurance for Santos' SWQ operations will be proposed during the process of obtaining and implementing the new amalgamated EAs. Existing financial assurance will be maintained until the implementation of the amalgamated EAs. Financial assurance will be recalculated at this time.

Name of signatory: s.73 Irrelevant information

Position of signatory: Manager Cooper Basin Oil
(Delegated Authority for Oil and Gas Operations)

s.73 Irrelevant information

Signature:

Date: 30 Sept 2013

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APPENDIX A – LAND SYSTEM CLASSIFICATION

Land System	Type	Vegetation	Soils
Other Alluvia	Occasionally flooded alluvial plains	Saltbush, Sclerolaena and short grass herbfield	Brown, red and grey clays with scalded areas
	Flat alluvial plains	Sparse vegetation	Scalded brown and grey clays and claypans
	Alluvial plains of minor streams	Short grass, Saltbush, Soda-Bush herbfield	Brown clays with some red and grey clays and loamy surfaced texture contrast soils
	Alluvial plains of minor streams	Sparse vegetation and short grass and Sclerolaena herbfield on plains, River Red Gum woodland or Mulga, Western Bloodwood tall open shrubland near channels	Texture contrast soils commonly scalded, grey and brown clays and some red earths
Channel Country	Flooded alluvial plains with anatomising channels	Bluebush, Lignum herbaceous low open shrubland, herbfield, Coolibah, Lignum shrubby woodland on major channel	Cracking grey clays
	Flat alluvial plains occasional flooding	Saltbush, Sclerolaena and short grass herbfield	Brown and grey clays
	Poorly drained swamps on alluvial plains	Bluebush, Lignum, Swamp Canegrass low open shrubland	Poorly drained grey clays
Dunefields	Plains with converging and diverging dunes 4-8 metres high with sporadic mobile crests	Spinifex hummock grassland	Red siliceous sands on the crests and red earthy sands and sandy red earth with grey clays in interdune claypans
	Plains with converging and diverging dunes with 4-8 metres high sporadic mobile crests	Spinifex shrubby hummock grassland	Sandy red earths and red siliceous sands with grey clays and texture contrast soils on interdune claypans
	Plains with reticulate sand dunes 3-5m high	Mulga, Whitewoods, Acacias Woollybutt Grass, herbaceous tall open shrubland	Red earthy sands, red siliceous sands and vegetated and bare interdune claypans
	Isolated dunes or small groups of rounded dunes 5-10m high with mobile crests on alluvial plains	Forby sparse tall open shrubland	Red and yellow siliceous sands with some red earthy sands
Undulating Downs	Flat to gently undulating plains	Fluctuating climax of Mitchell Grass, other short grasses, Saltbush and Sclerolaena herbfield	Very deep stony red and brown cracking clays
	Gently undulating to undulating plains	Fluctuating climate of Mitchell Grass, other short grasses, Saltbush and Sclerolaena herbfield	Very deep to deep weakly gilgaied stony red and brown cracking clays

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Land System	Type	Vegetation	Soils
	Gently undulating to undulating plains	Fluctuating climax of Mitchell Grass, other short grasses, Saltbush and Sclerolaena herbfield	Very deep to deep red and brown cracking clays, with loose self-mulching surfaces
	Undulating to gently undulating plains	Fluctuating climax of Mitchell Grass, other short grasses, Saltbush and Sclerolaena herbfield	Stony shallow to moderately deep desert loams and moderately deep to very deep red cracking clays
Undulating Gidgee Lands	Lower slopes and scarp retreat zone of the dissected residuals	Complex of Gidgee and Mulga tall open shrubland	Shallow loamy lithosols and red earths, shallow cracking clays and texture contrast soils
	Mantled pediments and scarp retreat zone	Complex of Gidgee and Mulga tall open shrubland	Shallow to deep red and brown cracking clays commonly gilgaied, red texture contrast soils and shallow red earths
	Undulating mantled pediments and scarp retreat zone	Gidgee tall open shrubland	Moderately deep to very deep, stony red and brown clays
	Gently undulating to undulating plains	Boree, Gidgee tall open shrubland to low woodland	Moderately deep to very deep, stony red cracking clays
Hard Mulga Lands	Flat to gently undulating plains	Mulga sparse tall open shrubland	Shallow to moderately deep loamy red earths and red texture contrast soils with ferruginous hardpans common
	Gently undulating plains	Mulga sparse tall open shrubland	Shallow loamy red earths
	Gently undulating to undulating convex plains	Mulga sparse tall open shrubland	Shallow to moderately deep red earths with silcrete cover
Soft Mulga Lands	Flat Plains (run-on areas)	Mulga/Popular Box tall shrubland	Moderately deep to deep loamy red earths
	Flat to gently undulating plains	Mulga tall open shrubland, diffuse groves	Moderately deep to deep loamy red earths
	Flat to very low sloping plains	Mulga tall open shrubland, distinct groves	Soils complex with shallow to moderately deep loamy red earths, loamy surfaced red texture contrast soils and red clays, sink holes common
Dissected Residuals	Dissected undulating plains and low hills	Bastard Mulga, Mulga sparse low to tall open shrubland	Shallow to very shallow red earths and lithosols
	Eroded tops of dissected low hills and undulating plains	Bastard Mulga/Dwarf Needlewood low open shrubland	Lithosols, with exposed rock common
	Gently undulating to flat tops and scarps of dissected tablelands, mesas and buttes	Mulga, Bastard Mulga shrubby tall open shrubland	Lithosols and shallow red earths with silcrete cover
	Scarps and flat to gently undulating tops of dissected tablelands, mesas and butted	Bastard Mulga sparse low shrubland with herbfield	Lithosols and shallow red earths with dense silcrete cover

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Land System	Type	Vegetation	Soils
Alluvial Plains, Woodlands	Seasonally flooded alluvial plains with braided channels	Gidgee low woodland	Very deep grey clays with some brown clays and texture contrast soils
	Flat alluvial plains	Yapunyah, Gidgee grassy woodland	Grey cracking clays commonly with associated claypans
	Alluvial Plains with braided channels	Coolibah, River Red Gum, Yapunyah, Gidgee low open woodland to woodland	Alluvial grey clays and texture contrast soils on channels and terraces, grey and brown clays on flat plains
	Alluvial plains with main channel and some braided channels	River Red Gum, Coolibah, fringing woodland on main channel and herbfield on plains	Alluvial clay soils, texture contrast soils and grey and brown clays
	Flat alluvial plains	Gidgee low woodland to tall open shrubland	Very deep, grey and brown cracking clays with weak to moderate gilgai
Miscellaneous	Major Lakes subject to infrequent flooding	Sparse vegetation with small area of herbfield and low open shrubland fringed with Coolibah and River Red Gum woodland	Massive and structured grey clays
	Claypans, saltpans, and small seasonal lakes	Sparse vegetation, Swamp Canegrass Hummock grassland and forbland	Massive surfaced grey clays, structured grey clays and texture contrast soils

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APPENDIX B – MAPS OF PETROLEUM LEASE AREAS

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