



Department of
**Environment and
Heritage Protection**

12-OCT-2016

To: Santos Limited, Delhi Petroleum Pty Ltd,
Origin Energy Resources Limited, Santos
Australian Hydrocarbons Pty Ltd and Vamgas
Pty Ltd
C/- Santos Limited
Team Leader Tenures and Compliance
Level 22, Santos Place
32 Turbot Street
BRISBANE CITY QLD 4000

Our reference: 370146

Application details

I refer to the application that was received by the administering authority on 26-SEP-2016.

Land description: PPL169.

Decision

Your application has been approved and your environmental authority (reference EPPG00775213) is attached.

Should you have any further enquiries, please contact Kathryn Burdett on telephone 1300 130 372 option 4.

Yours sincerely

A handwritten signature in black ink, appearing to be "K. Burdett", enclosed in a rectangular box.

Signature

12/10/2016

Date

Department of Environment and Heritage Protection
Delegate of the administering authority
Environmental Protection Act 1994

Kathryn Burdett
Permit and Licence Management
Department of Environment and
Heritage Protection
GPO Box 2454
BRISBANE QLD 4001
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ABN 46 640 294 485

Enclosed

Permit - environmental authority (reference EPPG00775213)

Permit¹

Environmental Protection Act 1994

Environmental authority

This authority is issued by the administering authority under Chapter 5 of the Environmental Protection Act 1994.

Permit¹ number: EPPG00775213

Environmental authority takes effect on 26-SEP-2016.

The anniversary date of this environmental authority remains 16-FEB. An annual return and the payment of the annual fee will be due each year on this day.

Environmental authority holder(s)

Name	Registered address
Santos Limited	Ground Floor, Santos Centre 60 Flinders Street ADELAIDE SA 5000
Santos Australian Hydrocarbons Pty Ltd	Ground Floor, Santos Centre 60 Flinders Street ADELAIDE SA 5000
Origin Energy Resources Limited	Level 3 135 Coronation Drive MILTON QLD 4064
Delhi Petroleum Pty Ltd	25 Conyngham Street GLENSIDE SA 5065
Vamgas Pty Ltd	GF Santos House 91 King William Street ADELAIDE SA 5000

Environmentally relevant activity and location details

Environmentally relevant activity(ies)	Location(s)
Petroleum - PPL	PPL169

Additional information for applicants

Environmentally relevant activities

The description of any environmentally relevant activity (ERA) for which an environmental authority is issued is a restatement of the ERA as defined by legislation at the time the approval is issued. Where there is any inconsistency between that description of an ERA and the conditions stated by an environmental authority as to

¹ Permit includes licences, approvals, permits, authorisations, certificates, sanctions or equivalent/similar as required by legislation

the scale, intensity or manner of carrying out an ERA, then the conditions prevail to the extent of the inconsistency.

An environmental authority authorises the carrying out of an ERA and does not authorise any environmental harm unless a condition stated by the authority specifically authorises environmental harm.

A person carrying out an ERA must also be a registered suitable operator under the *Environmental Protection Act 1994* (EP Act).

Contaminated land

It is a requirement of the EP Act that if an owner or occupier of land becomes aware a notifiable activity (as defined in Schedule 3 and Schedule 4) is being carried out on the land, or that the land has been, or is being, contaminated by a hazardous contaminant, the owner or occupier must, within 22 business days after becoming so aware, give written notice to the chief executive.



Signature

12/10/2016

Date

Department of Environment and Heritage Protection
Delegate of the administering authority
Environmental Protection Act 1994

Enquiries:

Kathryn Burdett
Permit and Licence Management
Department of Environment and Heritage
Protection
GPO Box 2454
BRISBANE QLD 4001
Phone: 1300 130 372
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Obligations under the *Environmental Protection Act 1994*

In addition to the requirements found in the conditions of this environmental authority, the holder must also meet their obligations under the EP Act, and the regulations made under the EP Act. For example, the holder must comply with the following provisions of the Act:

- general environmental duty (section 319)
- duty to notify environmental harm (section 320-320G)
- offence of causing serious or material environmental harm (sections 437-439)
- offence of causing environmental nuisance (section 440)
- offence of depositing prescribed water contaminants in waters and related matters (section 440ZG)
- offence to place contaminant where environmental harm or nuisance may be caused (section 443)

Conditions of environmental authority

The conditions of approval for this environmental authority are site-specific and are listed below:

This environmental authority consists of the following Schedules

Schedule A	General Conditions
Schedule B	Water
Schedule C	Dams
Schedule D	Land
Schedule E	Disturbance to Land
Schedule F	Environmental Nuisance
Schedule G	Waste
Schedule H	Rehabilitation
Schedule I	Stimulation Activities
Schedule J	Community Issues
Schedule K	Notification
Schedule L	Definitions

SCHEDULE A – GENERAL CONDITIONS

Authorised activities

- (A1) This environmental authority authorises activities for the construction of an oil pipeline on PPL169 for the purpose of transportation of petroleum product (oil).
- (A2) In the carrying out of the petroleum activity(ies), the holder of this environmental authority must not exceed the number and maximum size for each of the specified petroleum activities listed in Schedule A, Table 1 – Authorised Petroleum Activities and Pipeline Location for each petroleum tenure.

Schedule A, Table 1 – Authorised Petroleum Activities and Pipeline Location

Petroleum Licence No.	Petroleum Activity	Maximum size / length	GDA Zone	Latitude	Longitude
PPL169	Karmona East Manifold (start point)	DN150 / 13km	94	-27° 16' 54.10" S	141° 53' 55.74" E
	Yawa 1 Lease (end point)		94	-27° 22' 38.45" S	141° 55' 17.96" E
	CP				
	Start point	~	94	-27° 16' 54.10" S	141° 53' 55.74" E
	End point		94	-27° 22' 38.45" S	141° 55' 17.96" E
Third Party Crossing – (Monitoring Point)	94		-27° 17' 56.04" S	141° 53' 49.95" E	

Financial assurance

- (A3) The holder of this environmental authority must:
- calculate a **financial assurance** as required by the administering authority; and
 - attach a completed Schedule of Disturbance to the original and any amended work program or development plan; and
 - 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
 - maintain the financial assurance until the administering authority is satisfied that no claim is likely to be made on the assurance.

Contingency Plan for Emergency Environmental Incidents

- (A4) A Contingency Plan for Emergency Environmental Incidents which has been **certified** by a **suitably qualified person** must be developed prior to the carrying out of the petroleum activity(ies).
- (A5) The Contingency Plan for Emergency Environmental Incidents must include, but not necessarily be limited to:
- a clear definition of what constitutes an environmental emergency incident or near miss for the petroleum activity(ies) authorised to be carried out under this environmental authority;
 - identification of the types of environmental incidents that may occur, including but not

limited to flooding impacts, relevant to the petroleum activity(ies) authorised to be carried out under this environmental authority;

- (c) response procedures to be implemented to prevent or minimise the risk of environmental harm arising from environmental emergency incidents;
- (d) notification and reporting procedures (internal and external);
- (e) call-out procedures and contact lists;
- (f) measures required to halt the spill (i.e. control of pumps, valves etc);
- (g) spill containment procedures;
- (h) procedures to safely recover the spilt material;
- (i) impact monitoring programs and procedures including a receiving environment monitoring program, to be specifically implemented in the event of a release to **waters** or land to examine / assess environmental impacts. For monitoring of **waters**, this program must include upstream, downstream and impact site monitoring procedures. For soils monitoring, three replicate samples must be taken at depth intervals of 0-10 cm, 20-30 cm and 50-60 cm at both a reference site and the impact site as a minimum;
- (j) clean up and **rehabilitation** procedures;
- (k) requirements for the remediation or disposal of contaminated soil;
- (l) personnel responsibilities and training;
- (m) equipment requirements, location, storage, maintenance and transport;
- (n) communications and reporting; and
- (o) incident investigation procedures.

- (A6) The holder of this environmental authority must implement the Contingency Plan for Emergency Environmental Incidents.

Spill response

- (A7) A spill response plan must be developed for all pipelines and other plant or equipment under this environmental 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) impact monitoring programs and procedures;
 - (h) clean up and rehabilitation procedures;
 - (i) requirements for the remediation or disposal of contaminated soil;
 - (j) personnel responsibilities;
 - (k) equipment requirements, location, storage, maintenance and transport;
 - (l) communications and logistics; and
 - (m) incident investigation procedures.

Infrastructure

- (A8) All above ground **infrastructure** used for the petroleum activities must be removed prior to surrender of this environmental authority, except where it is to remain under a resource authority pursuant to *Petroleum and Gas (Production and Safety) Act 2004*, or with the written agreement of the administering authority and the post **petroleum authority** landowner/holder.

Monitoring

- (A9) The holder of this environmental authority must:
- (a) develop a monitoring program that will demonstrate compliance with the relevant conditions of the environmental authority; and
 - (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.
- (A10) All monitoring under this environmental authority must be conducted by a suitably qualified **person**.
- (A11) All instruments, equipment and measuring devices used for measuring or monitoring in accordance with any condition of this environmental authority must be calibrated, operated and maintained effectively in accordance with the manufacturer's specifications.
- (A12) All laboratory analyses and tests required to be conducted under this environmental authority must be carried out by a laboratory that has **NATA accreditation** for such analyses and tests, except as otherwise authorised by the administering authority.

Maintenance of Measures, Plant and Equipment

- (A13) The holder of the environmental authority must:
- (a) install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority;
 - (b) maintain such measures, plant and equipment in their proper and effective condition; and
 - (c) operate such measures, plant and equipment in a proper and effective manner.
- (A14) No change, replacement or alteration of any plant or equipment is permitted if the change, replacement or alteration materially increases, or is likely to increase, the environmental harm caused by the petroleum activity(ies).

SCHEDULE B - WATER

Contaminant Release

- (B1) Contaminants must not be directly or indirectly **released** to any **waters** except as permitted under this environmental authority.

River Improvement Areas

- (B2) All measures must be taken to prevent and/or minimise negative impacts to, or reversal of, any river improvement works carried out in River Improvement Areas by Queensland's River Improvement Trusts.

Floodplains

- (B3) Where the petroleum activity(ies) is carried out on floodplains, the holder of this environmental authority must ensure that the petroleum activity(ies) does not:
- (a) concentrate flood flows in a way that will or may cause or threaten an adverse environmental impact; or
 - (b) divert flood flows from natural drainage paths and alter flow distribution; or
 - (c) increase the local duration of floods; or
 - (d) increase the risk of detaining flood flows; or
 - (e) pose an unacceptable risk to the safety of persons from flooding; or
 - (f) pose an unacceptable risk of damage to property from flooding.

Watercourse, lake, wetland or spring

- (B4) Unless otherwise authorised under this environmental authority, petroleum activity(ies) that require earthworks, vegetation **clearing** and / or placing **fill**, other than that associated with the construction of **linear infrastructure**, is not permitted in or within:
- (a) 200 metres from any **wetland, lake or spring**; or
 - (b) 100 metres of the **high bank** of any other **watercourse**.
- (B5) Works for linear infrastructure may be undertaken within 200 metres of, and in a wetland, lake or spring or within 100 meters of, and in a watercourse where there is no reasonable and practicable alternative and only for a maximum period of 10 **business days**, provided that the works are conducted in accordance with the following order of preference:
- (a) conducting work in times of no flow;
 - (b) conducting work in times of flow but in a way that does not:
 - (i) adversely impact the flow of water within the watercourse; or
 - (ii) permanently impound water; or
 - (iii) permanently divert the course of flow of water.
- (B6) Works for linear infrastructure resulting in **significant disturbance** to the **bed and banks** of a watercourse, wetland, lake or spring must:
- (a) be no greater than the minimum area necessary for the purpose of the significant disturbance;
 - (b) be designed and undertaken by a suitably qualified person taking into account the matters listed in the "Planning Activities" and "Impact Management During Activities" sections of the Department of Environment and Resource Management's "Guideline – Activities in a

watercourse, lake or spring associated with mining operations" December 2010, as amended from time to time; and

- (c) upon cessation of the works, commence rehabilitation immediately.
- (B7) Sediment control measures must be implemented to minimise any increase in water turbidity due to works for linear infrastructure in the **bed and banks** of a watercourse, wetland, lake or spring.
- (B8) Routine, regular and frequent visual monitoring must be undertaken while carrying out works for linear infrastructure and any maintenance of completed works in a watercourse, wetland, lake or spring.
- (B9) If, due to works for linear infrastructure, water turbidity increases in a watercourse, wetland, lake or spring outside contained areas, works must cease and the sediment control measures must be rectified to limit turbidity before the works recommence.
- (B10) The extraction of groundwater as part of the petroleum activity(ies) from underground aquifers must not directly or indirectly cause environmental harm to any watercourse, lake, wetland or spring.

SCHEDULE C – DAMS

- (C1) **Regulated dams** are not permitted under this environmental authority.

Management of dams

- (C2) **Low hazard dams** must be designed with a floor and sides made of material to contain the wetting front and any entrained contaminants within the bounds of the containment system during its operational life, including any period of decommissioning and rehabilitation.
- (C3) All low hazard dams must be designed and constructed, operated and maintained in accordance with **accepted engineering standards** currently appropriate for the purpose for which they are intended.
- (C4) The **hazard category** of each low hazard dam must be determined by a **suitably qualified and experienced person**:
- (a) prior to its **construction**; or
 - (b) within 120 **business days** of the date of grant of this environmental authority for existing low hazard dams; and
 - (c) prior to any change in its purpose or stored contents.
- (C5) Where the hazard category of a low hazard dam is for the first time **assessed** as significant or high, the holder of this environmental authority must:
- (a) apply to amend this environmental authority to a **level 1 environmental authority** within 30 business days of the assessment; and
 - (b) ensure that the dam meets the **hydraulic performance** required of the assessed hazard category within 12 **months** of that assessment.
- (C6) 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.
- (C7) In the event of early signs of loss of structural or hydraulic integrity of a low hazard dam, the holder of this environmental authority must immediately take action to prevent or minimise any actual or potential environmental harm.

Access to dams

- (C8) Any low hazard dam constructed as part of the petroleum activity(ies) 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.

Decommissioning dams

- (C9) Each low hazard dam must be decommissioned such that it either:
- (a) no longer contains **flowable substances**; and
 - (b) becomes a **stable** landform; and
 - (c) is compliant with the rehabilitation requirements of this environmental authority; or

- (d) 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; or
- (e) is approved or authorised under relevant legislation for a **beneficial use**; or
- (f) becomes a **void** authorised by the administering authority to remain after decommissioning.

SCHEDULE D - LAND

Contaminated releases

- (D1) Contaminants must not be directly or indirectly released to land except as permitted under this environmental authority.

Soil Management

- (D2) 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.
- (D3) Highly erodible soils must not be disturbed as a result of the carrying out of the petroleum activity(ies).

Chemical Storage

- (D4) This environmental authority does not authorise chemical storage in excess of:
- (a) total quantity of 10 m³ of:
 - (i) chemicals of class C1 or C2 combustible liquids or dangerous goods class 3 under AS 1940 *The Storage and Handling of Flammable and Combustible Liquids*; or
 - (ii) storing a total of 50t or more of chemicals of dangerous goods class 1 or class 2, division 2.3; or
 - (b) 50 tonnes or more of chemicals of dangerous goods class 6, division 6.1 in containers capable of holding at least 900 kg of the chemicals.

Sewage Treatment Works

- (D5) The construction and operation of sewage treatment works is authorised if:
- (a) the combined total daily peak design capacity is less than 21 **equivalent persons**; or
 - (b) it is operated as a no-release works.

Extracting material

- (D6) Extracting material greater than 500 tonne a year is not permitted under this environmental authority.

Pipeline construction

- (D7) Pipeline construction corridor must not exceed 15 metres in width.
- (D8) Turn around and work areas associated with pipeline construction must not exceed 50 metres in width.
- (D9) Pipeline trenches must only be left open for the minimum time practicable.
- (D10) The length of pipeline trench open at any one time must be minimised as far as practicable.
- (D11) Pipelines must be preferentially located alongside existing linear infrastructure.
- (D12) Measures must be employed to prevent fauna entrapment in pipe sections or within the pipeline trench.

- (D13) Open trenches and pipes must be checked for fauna prior to backfill and any trapped animals removed.

Decommissioning pipelines

- (D14) The holder of this environmental authority must decommission inactive buried pipelines by in-situ decommissioning (abandonment in place).
- (D15) Prior to pipelines and equipment being disconnected they must be drained or vented and cleaned via purging or flushing.
- (D16) Any water used for purging or flushing the 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 dam.

Erosion and Sediment Control Plan

- (D17) An Erosion and Sediment Control Plan which has been certified by a suitably qualified person must be developed prior to the commencement of the petroleum activity(ies) authorised by this environmental authority.
- (D18) The Erosion and Sediment Control Plan must include but not necessarily be limited to:
- (a) managing and / or diverting uncontaminated stormwater run-off around areas disturbed by the petroleum activity(ies) or where contaminants or wastes are stored or handled that may contribute to contamination of waters;
 - (b) ensuring that contaminated stormwater runoff and incident rainfall is collected, treated, reused, or released in accordance with the conditions of this environmental authority;
 - (c) roofing or minimising the size of areas where contaminants or wastes are stored or handled;
 - (d) revegetating disturbed areas as soon as practicable after the completion of works;
 - (e) using materials and or processes (e.g. dry absorbents) to clean up spills that will minimise contamination of waters;
 - (f) placing erosion and sediment control structures to minimise erosion of disturbed areas and prevent the contamination of waters;
 - (g) an inspection and maintenance program for the erosion and sediment control measures;
 - (h) provision for adequate access to maintain all erosion and sediment control measures especially during the wet season months from November to April;
 - (i) additional erosion and sediment control measures for construction of pipelines on slopes >10%;
 - (j) a surface water monitoring program designed to detect impacts from sediment runoff into waters;
 - (k) identification of remedial actions required to ensure compliance with the conditions of this environmental authority; and
 - (l) details of community consultation strategies and processes to be used in further developing and implementing the Erosion and Sediment Control Plan.

- (D19) The holder of this environmental authority must implement the Erosion and Sediment Control Plan.

SCHEDULE E - DISTURBANCE TO LAND

Pre-disturbance assessment

- (E1) Prior to conducting petroleum activities that involve **significant disturbance to land**, an assessment must be undertaken of the condition, type and ecological value of soils and vegetation in such areas where the activity is proposed to take place.
- (E2) The assessment required by condition (E1) must be undertaken by a **suitably qualified person** and include the carrying out of field validation surveys, observations and mapping of any **Category A, B or C Environmentally Sensitive Areas, wetlands** and the presence of species classed as endangered, vulnerable, rare or near threatened under the *Nature Conservation Act 1992*.
- (E3) The assessment required by condition (E1) must include, but not necessarily be limited to:
- (a) baseline soils quality data and maps for the soil units to be disturbed as provided for in the Soils Management Plan;
 - (b) identification of the vegetation communities present (including species composition and regional ecosystem type² for native vegetation communities) within each area(s) to be disturbed;
 - (c) data representing each vegetation community present within each area(s) to be rehabilitated including:
 - (i) flora **species richness** and diversity;
 - (ii) structural data including woody stem count densities for dominant species within each stratum; and
 - (iii) percent **foliage cover** (accounting for seasonal variation and excluding **declared pest plants**);
 - (d) data regarding habitat features, including but not necessarily limited to:
 - (i) organic litter cover (%); and
 - (ii) trees with hollows $\geq 10\text{cm}$ diameter (count and number per hectare);
 - (iii) hollow bearing logs (count and number per hectare); and
 - (iv) fallen woody material (total length of logs $\geq 10\text{ cm}$ diameter per hectare and number of logs $\geq 10\text{cm}$ diameter per hectare); and
 - (e) a map or series of maps of suitable scale displaying the distributing of vegetation communities.
- (E4) If the assessment required by conditions (E1) to (E3) indicates that that an Environmentally Sensitive Area or wetland is incorrectly identified through State mapping, or is present and not identified by State mapping, the holder of this environmental authority must advise the administering authority in writing before any significant disturbance to land takes place.
- (E5) If, within the 20 business days following the lodgement of the notification under condition (E4) the administering authority notifies the holder of this environmental authority, in writing, that further validation of the Environmentally Sensitive Area or wetland is required, then significant disturbance to land within the relevant area is prohibited until the administering authority provides written advice that significant disturbance to land may proceed.

¹ Regional ecosystem type should be established using the most current version of the Qld Government's "Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland". Assessment of the vegetation communities should be sufficient to establish any inherent variation within a single regional ecosystem type.

Vegetation Clearing

- (E6) A maximum area of 19 hectares of remnant and high value regrowth vegetation may be cleared within the PPL169 boundary for the pipeline right of way, turnaround bays, access tracks and pipe stringing areas comprising:
- (a) remnant vegetation – 19 ha; and
 - (b) high value regrowth vegetation – 0 ha.

Environmentally Sensitive Areas (ESAs)

- (E7) Petroleum activities must not be carried out in Category A, B or C Environmentally Sensitive Areas.
- (E8) The holder of this environmental authority, must ensure that clearing of **remnant vegetation** shall not exceed ten (10) metres in width for the purpose of establishing tracks and 20 metres in width for dual carriageway roads unless otherwise approved by the administering authority in writing.
- (E9) The holder of this environmental authority must not clear vegetation or place fill:
- (a) in a way which significantly isolates, fragments or dissects tracts of vegetation resulting in a reduction in the current level of **ecosystem functioning**, ecological connectivity (i.e. stepping stone or contiguous bioregional/local corridor networks) and/or results in an increase in **threatening processes** (e.g. potential impacts associated with edge effects or introduced species);
 - (b) on slopes greater than 10% for activities other than pipelines; or
 - (c) in **discharge areas**.
- (E10) Cleared vegetation must be stockpiled in a manner that facilitates respreading or salvaging and does not impede vehicle, stock or wildlife movements.

Offsets

- (E11) The holder of this environmental authority must enter in to an environmental offset agreement with the administering authority where **significant disturbance to land with State significant biodiversity values** cannot be avoided or minimised.
- (E12) The record of significant disturbance must be provided within six (6) **months** of the issue of this environmental authority and the environmental offset agreement must be entered in to within six (6) **months** of the issue of this environmental authority, unless otherwise agreed to by the administering authority.
- (E13) The holder of this environmental authority must implement any environmental offset agreement within twelve (12) **months** of the issue of this environmental authority.

SCHEDULE F – ENVIRONMENTAL NUISANCE

Release of contaminants to the atmosphere

- (F1) The release of odour, dust or any other airborne contaminant(s), or light from the petroleum activity(ies) must not cause an environmental nuisance at any **sensitive place**.
- (F2) Individual or combined fuel burning equipment that is capable of burning at least 500 kg in an hour is not permitted under this environmental authority.

Noise

- (F3) A Noise Management Plan which has been certified by a suitably qualified person must be developed prior to the commencement of the petroleum activity(ies) authorised under this environmental authority.
- (F4) The Noise Management Plan must include, but not necessarily be limited to:
 - (a) a commitment by the Chief Executive Officer for the holder of this environmental authority, or their delegate, to ensure adequate allocation of staff and resources to the establishment and operation of the Noise Management Plan;
 - (b) definition of roles, responsibilities and authorities within the staffing of the Noise Management Plan;
 - (c) delivery of training to staff and contractors and maintenance of competencies;
 - (d) risk/constraint analysis methods to be undertaken prior to any new operation (e.g. drill site) or installation of new equipment that has the potential to create noise nuisance;
 - (e) procedures and methods to undertake assessments to determine compliance with the noise limits in Schedule F, Table 1 – Noise limits at **Sensitive Receptors** in the event of a **valid complaint** being received and when there are no **alternative arrangements** in place, taking into account any tonal or **impulsive noise** impacts;
 - (f) procedures for handling noise complaints;
 - (g) community liaison and consultation procedures including but not limited to consultation for when night time petroleum activities (i.e. between 10:00 pm and 6:00 am) are likely to exceed 25 dBA;
 - (h) procedures for managing records associated with all aspects of the Noise Management Plan including standardised forms for recording monitoring results and complaints;
 - (i) details of petroleum activities and measured and/or predicted noise levels of noise sources associated with those activities;
 - (j) reasonable and practicable control or abatement measures (including relocating the activity, altering the hours of operation, or having an **alternative arrangement** in place with any potentially affected person) that can be undertaken to ensure compliance with the noise limits in Schedule F, Table 1 – Noise limits at Sensitive Receptors;
 - (k) the level of noise at sensitive receptors that would be achieved from implementing the measures detailed under condition (F4)(j); and
 - (l) mediation processes to be used in the event that noise complaints are not able to be resolved.
- (F5) Prior to undertaking petroleum activities that will result in **short term, medium term or long term noise events** that are likely to impact on a sensitive receptor, the holder of this environmental authority must model or calculate any potential noise emissions from the relevant petroleum activity(ies) to ensure that noise emissions will not exceed the noise levels specified in Schedule F, Table 1 – Noise limits at Sensitive Receptors.
- (F6) The emission of noise from the petroleum activity(ies) authorised under this environmental authority must not result in levels greater than those specified in Schedule F, Table 1 – Noise

limits at Sensitive Receptors in the event of a valid complaint about noise being made to the administering authority.

Schedule F, Table 1 – Noise Limits at Sensitive Receptors

Time Period	Metric	Short Term Noise Event	Medium Term Noise Event	Long Term Noise Event
7:00 am – 6:00 pm	$L_{Aeq,adj,15\ min}$	45 dBA	43 dBA	40 dBA
6:00 pm – 10:00 pm	$L_{Aeq,adj,15\ min}$	40 dBA	38 dBA	35 dBA
10:00 pm – 6:00 am	$L_{Aeq,adj,15\ min}$	28 dBA	28 dBA	28 dBA
	Max $L_{pA, 15\ mins}$	55 dBA	55 dBA	55 dBA
6:00 am – 7:00 am	$L_{Aeq,adj,15\ min}$	40 dBA	38 dBA	35 dBA

Notes:

1. L_{Aeq} and **Max L_{pA}** are to be measured over any 15 minute period
2. The noise limits in Table 1 have been set based on the following deemed **background noise levels** * L_{ABG}):

7:00 am - 6:00 pm:	35 dBA
6:00 pm – 10:00 pm:	30 dBA
10:00 pm – 6:00 am:	25 dBA
6:00 am – 7:00 am:	30 dBA

- (F7) If the noise subject to a complaint is tonal or impulsive, the adjustments detailed in Schedule F, Table 2 – Adjustments to be Added to Noise Levels at Sensitive Receptors are to be added to the measured noise level(s) to derive $L_{Aeq, adj, 15\ min}$.

Schedule F, Table 2 – Adjustments to be Added to Noise Levels at Sensitive Receptors

Noise Characteristic	Adjustment to Noise
Tonal characteristic is just audible	+ 2 dBA
Tonal characteristic is clearly audible	+ 5 dBA
Impulsive characteristic is just audible	+ 2 dBA
Impulsive characteristic is clearly audible	+ 5 dBA

- (F8) Where alternative arrangements are in place with an affected person(s) at a sensitive receptor as referred to by condition (F4)(j), the noise limits in Schedule F, Table 1 – Noise limits at Sensitive

Receptors do not apply at that sensitive receptor for the duration for which the alternative arrangements are in place.

- (F9) 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 (2000) or the most recent version of *AS1055 Acoustics – Description and measurement of environmental noise*.

Vibration and Blasting

- (F10) Blasting activities are not permitted under this environmental authority.

Abrasive Blasting and Surface Coating

- (F11) In carrying out abrasive blasting and surface coating activities, the environmental authority holder must comply with the Code of Environmental Compliance for certain aspects of Mobile and Temporary Abrasive Blasting.
- (F12) Where abrasive blasting or surface coating activities are to be carried out over water, on land below the highest astronomical tide or on land subject to 1:10 year flood regime, the holder of this environmental authority must carry out the activity in accordance with the requirements and procedures outlined in the following DERM guidelines to prevent the release of contaminants to waters:
- (a) over-water abrasive blasting in marine and other aquatic environments (guideline); and
 - (b) over-water abrasive blasting – environmental risk assessment (information sheet).

SCHEDULE G – WASTE

General waste management

- (G1) All general waste must only be removed from the site and sent to a recycling facility or disposal facility licensed to accept the waste under the *Environmental Protection Act 1994*.

Regulated waste

- (G2) All **regulated waste** must only be removed from the site by a person who holds a current authority to transport such waste under the provisions of the *Environmental Protection Act 1994* and sent to a recycling facility or disposal facility licensed to accept the waste.
- (G3) Regulated waste generated in carrying out the petroleum activit(ies) can be temporarily stored on 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.
- (G4) 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.
- (G5) All waste fluids and muds resulting from drilling and exploration activities must be contained in an appropriately constructed dam or containment structure for off site disposal.

Waste burning

- (G6) Waste must not be burned or be allowed to be burned under this environmental authority unless it is vegetation and is authorised in writing under the *Forestry Act 1959*.

Storage

- (G7) All containment systems for waste liquids stored on site that have the potential to cause environmental harm must be designed to minimise rainfall collection within the system.

SCHEDULE H – REHABILITATION

Analogue Site for Rehabilitation Monitoring

- (H1) The holder of this environmental authority must identify, map and survey **analogue sites** for measuring the success of rehabilitation activities on **significantly disturbed land** prior to rehabilitation activities commencing.

Progressive Rehabilitation for Significantly Disturbed Land

- (H2) Pipelines trenches must be backfilled immediately after pipe laying and rehabilitated as soon as practicable but not longer than three (3) months after completion.
- (H3) During backfilling of pipeline trenches, soils must be replaced so that the soil horizons are consistent with the soil horizons of the immediately surrounding area.
- (H4) Backfilled and rehabilitated pipeline trenches must:
- (a) be a stable landform;
 - (b) exhibit no subsidence or erosion gullies for the life of the operational pipeline; and
 - (c) be re-profiled to a level consistent with surrounding soils; and
 - (d) be re-profiled to original contours and established drainage lines; and
 - (e) be visually consistent with the surround land features; and
 - (f) be vegetated with groundcover as a minimum to ensure that erosion is minimised; and
 - (g) be free of any **declared pest plants**.
- (H5) Progressive rehabilitation of significantly disturbed land caused by the carrying out of the petroleum activity(ies) (other than constructing pipelines) which is not required for the ongoing conduct of the petroleum activity(ies) must commence as soon as practicable, but not longer than nine (9) months following the completion of any construction or operational works associated with the petroleum activity(ies).
- (H6) Progressive rehabilitation of significantly disturbed land caused by the carrying out of the petroleum activity(ies) must be undertaken in accordance with the Schedule of Disturbance as submitted to the administering authority as part of the financial assurance calculations.
- (H7) Progressive rehabilitation of significantly disturbed land caused by the carrying out of the petroleum activity(ies) must:
- (a) remediate any contaminated land (e.g. contaminated soils, decommissioned dams containing salt);
 - (b) reshape all significantly disturbed land to a stable landform;
 - (c) reprofile all significantly disturbed land to original contours;
 - (d) on all significantly disturbed land:
 - (i) re-establish surface drainage lines;
 - (ii) reinstate the top layer of the soil profile;
 - (iii) establish groundcover to ensure that erosion is minimised;
 - (iv) establishing vegetation of similar species composition and density cover to the analogue site;
 - (e) undertake rehabilitation in a manner such that any actual and potential acid sulfate soils in or on the site are either not disturbed, or submerged, or are treated to prevent and / or minimise environmental harm.

Final Acceptance Criteria for Significantly Disturbed Land

- (H8) All significantly disturbed land caused by the carrying out of the petroleum activity(ies) must be rehabilitated to meet the following final acceptance criteria:
- (a) For all land use(s):
 - (i) all significantly disturbed land is reinstated to the pre-disturbed soil suitability class;
 - (ii) the landform is safe for humans and fauna;
 - (iii) the landform is stable with no subsidence or erosion gullies for at least three (3) years;
 - (iv) all significantly disturbed land is reinstated so that the distribution of vegetation communities represents that of the analogue site;
 - (v) the water quality of any residual void or water bodies constructed by the petroleum activity(ies) meets criteria for subsequent uses and does not have potential to cause environmental harm;
 - (vi) there is no ongoing contamination to waters;
 - (vii) the rehabilitated land is free of any declared pest plants;
 - (viii) there is no ongoing contamination to groundwater from dams or monowells (demonstrated via groundwater monitoring and leak detection monitoring systems); and
 - (ix) the maintenance requirements for rehabilitated land is no greater than that required for the land prior to its disturbance caused by carrying out the petroleum activity(ies).
 - (b) Additional requirements for sites that are being reinstated to native ecosystems:
 - (i) each vegetation community must be re-established so that the following rehabilitation parameters are maintained for at least three (3) years:
 - (ii) the rehabilitated site shows distinct and progressive re-establishment of the various strata which characterise the vegetation community in the analogue site;
 - (iii) all dominant species within each strata are re-established at densities equivalent to that of the analogue site;
 - (iv) notwithstanding (H8) (b)(i) and (H8) (b)(ii), a minimum of 70% **species richness** and **species diversity** is observed when compared to the relevant analogue site;
 - (v) a minimum of 50% **foliage cover** is observed when compared to the relevant analogue site;
 - (vi) each vegetation community must be rehabilitated and maintained until it can be demonstrated that it is resilient and self-sustaining (demonstrated by reproduction and colonisation); and
 - (vii) percent organic litter cover, count and density of hollow bearing logs and nest boxes (as replacement for trees with hollows ≥ 10 cm diameter) and fallen woody material (total length of logs ≥ 10 cm diameter per hectare and number of logs ≥ 10 cm per hectare) have been installed at numbers and densities no lower than the analogue site.

Rehabilitation Monitoring Program

- (H9) A Rehabilitation Monitoring Program which has been certified by a suitably qualified person must be developed by 11 May 2012.
- (H10) The Rehabilitation Monitoring Program must include, but not necessarily be limited to:
- (a) methods to measure subsidence and erosion rates at rehabilitated buried transmission pipeline corridors and buried flow lines;

- (b) monitoring of indicators identified in the Rehabilitation Plan at analogue sites to measure progressive and final rehabilitation success relevant to the final land use(s); and
 - (c) frequency and seasonality of monitoring analogue sites and rehabilitated areas to **assess** rehabilitation success; and
 - (d) identification of the experimental design for analysing analogue and rehabilitated site data including statistical methods of analyses.
- (H11) The holder of this environmental authority must implement the Rehabilitation Monitoring Program.

Monitoring of Progressive Rehabilitation

- (H12) Regular maintenance and at least yearly monitoring of rehabilitated areas must take place to measure compliance with condition (H4) and (H7) .

Monitoring of Final Rehabilitation Success

- (H13) Final acceptance criteria are deemed to be met when monitoring of rehabilitated areas demonstrate compliance with the requirements of condition (H8) for three (3) consecutive years.

Transition of petroleum authority

- (H14) The holder of this 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 resource authority over that land which now forms part of the current project.

SCHEDULE I – WELL DRILLING, COMPLETION AND STIMULATION

- (11) **Oil based drilling muds** must not be used in the carrying out of the petroleum activity(ies).
- (12) **Synthetic based drilling muds** must not be used in the carrying out of the petroleum activity(ies).
- (13) **Stimulation** activities are not permitted under this environmental authority.

SCHEDULE J – COMMUNITY ISSUES

- (J1) The holder of this environmental authority must maintain a record of all valid complaints and incidents causing environmental harm, and actions taken in response to the valid complaint or incident.
- (J2) The holder of this environmental authority must record the following details for all valid complaints received:
- (a) name, address and contact number for valid complainant;
 - (b) time and date of valid complaint;
 - (c) reasons for the complaint as stated by the valid complainant;
 - (d) investigations undertaken in response to the valid complaint;
 - (e) conclusions formed;
 - (f) actions taken to resolve the valid complaint;
 - (g) any abatement measures implemented to mitigate the cause of the valid complaint; and
 - (h) name and contact details of the person responsible for resolving the valid complaint.

SCHEDULE K – NOTIFICATION PROCEDURES

- (K1) The holder of this environmental authority must telephone the Department of Environment and Resource Management's Pollution Hotline (telephone: 1300 130 372) and any affected landholder, occupier or their nominated representative as soon as reasonably practicable, but within 24 hours after becoming aware of:
- (a) a release of contaminants as provided for in condition (K3) ; or
 - (b) any event where environmental harm (excluding environmental nuisance) has been caused or may be caused.
- (K2) Notwithstanding condition (K1) , the holder of this environmental authority must telephone the Department of Environment and Resource Management's Pollution Hotline (telephone: 1300 130 372) as soon as reasonably practicable, but within 24 hours after becoming aware of:
- (a) any non-compliance with any condition of this environmental authority other than in relation to a release of contaminants; or
 - (b) a potential or actual loss of structural or hydraulic integrity of a dam; or
 - (c) any incident where there is a potential or actual loss of well integrity (e.g. when the annulus pressure during stimulation increases by more than 3.5 MPa from the pressure immediately preceding stimulation).
- (K3) Subject to condition (K1) , the holder of this environmental authority must report spills of contaminants (including but not limited to hydrocarbons) of the following volumes or kind:
- (a) releases of any volume of contaminants to water;
 - (b) releases of volumes of contaminants to land greater than:
 - (i) 200L of hydrocarbons; or
 - (ii) 200 L of stimulation additives; or
 - (iii) 500 L of stimulation fluids; or
 - (iv) 1000 L of **brine**; or
 - (v) 5 000 L of coal seam gas water;
 - (c) any other release not authorised under this environmental authority which has caused or has the potential to cause serious or material environmental harm.
- (K4) The notification of emergencies or incidents as required by conditions (K1) and (K3) must include but not be limited to the following information:
- (a) the environmental authority number and name of the holder;
 - (b) the tenure type and number where the emergency or incident occurred;
 - (c) the name and telephone number of the designated contact person;
 - (d) the location of the emergency or incident (GDA94);
 - (e) the date and time that the emergency or incident occurred;
 - (f) the date and time the holder of this environmental authority became aware of the emergency or incident;
 - (g) details of the nature of the event and the circumstances in which it occurred;
 - (h) the estimated quantity and type of any contaminants involved in the incident;
 - (i) the actual or potential suspected cause of the emergency or incident;
 - (j) a description of the land use at the site of the emergency or incident (e.g. grazing, pasture, forest etc) and/or the name of any relevant waters and other environmentally sensitive features;

- (k) a description of the possible impacts from the emergency or incident;
 - (l) a description of whether stock and/or wildlife were actually or potentially exposed to any contaminants released and measures taken to prevent access for the duration of the emergency or incident;
 - (m) any sampling conducted or proposed, relevant to the emergency or incident;
 - (n) landholder details and details of landholder consultation;
 - (o) immediate actions taken to control the impacts of the emergency or incident and how environmental harm was mitigated at the time of the emergency or incident; and
 - (p) whether further examination/root cause analysis is required and if so, the expected date by when this examination will be completed and reported to the administering authority.
- (K5) Within ten (10) business days following the initial notification unless a longer time is agreed to by the administering authority, a written report must be provided to the administering authority, including the following (where relevant to the emergency or incident):
- (a) the information required by condition (K4) (a) – (K4) (p);
 - (b) the root cause of the emergency or incident;
 - (c) the confirmed quantities and types of any contaminants involved in the incident;
 - (d) results and interpretation of any analysis of samples taken at the time of the emergency or incident
 - (e) (including the analysis results of any impact monitoring);
 - (f) a final assessment of the impacts from the emergency or incident including any actual or potential environmental harm that has occurred or may occur in the longer term as a result of the release;
 - (g) the success or otherwise of actions taken at the time of the incident to prevent or minimise environmental harm;
 - (h) results and current status of landholder consultation, including commitment to resolve any outstanding issues/concerns; and
 - (i) actions and/or procedural changes to prevent a recurrence of the emergency or incident.
- (K6) If groundwater contamination caused by the petroleum activity(ies) is encountered, the following must be reported to the administering authority within ten (10) business days following the initial notification of results indicating significant change:
- (a) the level of environmental harm caused as a result of such contamination to soils and groundwater;
 - (b) the conduct of a geodetic survey of all monitoring bores to determine the relative water surface elevations of each bore and reported in metres relative to the **AHD**; and
 - (c) the determination of groundwater flow direction, groundwater flow rate and hydraulic conductivity.

SCHEDULE L – DEFINITIONS

Note: Where a term is not defined in this environmental authority, the definition in the *Environmental Protection Act 1994*, its regulations and Environmental Protection Policies, or the *Acts Interpretations Act 1954*, or the *Macquarie Dictionary*, 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.

AHD means Australian Height Datum and is the datum used for the determination of elevations in Australia. The determination uses a national network of benchmarks and tide gauges and sets mean sea level at zero elevation

Alternative arrangement means a written agreement between the holder of this environmental authority and an affected or potentially affected person at a sensitive receptor for a defined noise nuisance impact and may include an agreed period of time for which the arrangement is in place. An agreement for alternative arrangement may include, but not necessarily be limited to a range of noise abatement measures to be installed at a sensitive receptor and / or provision of alternative accommodation for the duration of the defined noise nuisance impact.

Analogue site means an area of land which contains values and characteristics representative of an area to be rehabilitated prior to disturbance. Such values must encompass land use, topographic, soil, vegetation and other ecological characteristics. Analogue sites can be the pre-disturbed site of interest where significant surveying effort has been undertaken to establish benchmark parameters via ground truthing assessments.

Analytes means a chemical parameter determined by either physical measurement in the field or by laboratory analysis.

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.

Brine means saline water with a total dissolved solid concentration greater than 40 000 mg/l.

Bund or banded 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 banded 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.

Business day has the meaning in the *Acts Interpretation Act 1954* and means a day that is not—

- a Saturday or Sunday; or
- a public holiday, special holiday or bank holiday in the place in which any relevant act is to be or may be done; or

Category A Environmentally Sensitive Area means any area listed in Section 25 of the *Environmental Protection Regulation 2008*.

Category B Environmentally Sensitive Area means any area listed in Section 26 of the *Environmental Protection Regulation 2008*.

Category C Environmentally Sensitive Area means any of the following areas:

- o Nature Refuges as defined under the *Nature Conservation Act 1992*;
- o Koala Habitat Areas as defined under the *Nature Conservation (Koala) Conservation Plan 2006*;
- o State Forests or Timber Reserves as defined under the *Forestry Act 1959*;
- o Declared catchment areas under the *Water Act 2000*;
- o Resources reserves under the *Nature Conservation Act 1992*
- o An area identified as "Essential Habitat" or "Essential Regrowth Habitat" under the *Vegetation Management Act 1999* for a species of wildlife listed as endangered, vulnerable, rare or near threatened under the *Nature Conservation Act 1992*; or
- o Of Concern Regional Ecosystems identified in the database maintained by the Department of Environment and Resource Management called 'RE description database' containing Regional Ecosystem numbers and descriptions.

Clearing for vegetation means removing, cutting down, ringbarking, pushing over, poisoning or destroying in any way including by burning, flooding or draining; but does not include destroying standing vegetation by stock, or lopping a tree.

Certification or **certified** by a suitably qualified and experienced person in relation to a design plan, 'as constructed' drawings 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.

Construction in relation to a dam includes building a new dam and modifying or lifting an existing dam but does not include investigations and testing necessary for the purposes of preparing a design plan.

Contaminants are chemicals or pollutants that are not naturally found in the area, and/or chemicals or pollutants at levels above those found naturally in the area.

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*.

DERM means Queensland Department of Environment and Resource Management.

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.

Document has the meaning in the *Acts Interpretation Act 1954* and means:

- o any paper or other material on which there is writing; and
- o any paper or other material on which there are marks; and
- o figures, symbols or perforations having a meaning for a person qualified to interpret them; and

- any disc, tape or other article or any material from which sounds, images, writings or messages are capable of being produced or reproduced (with or without the aid of another article or device).

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.

Equivalent person means an equivalent person under volume 1, section 2 of the "Guidelines for Planning and Design of Sewerage Schemes", October 1991, published by the Water Resources Commission, Department of Primary Industries, Fisheries and Forestry.

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.

Floodplain has the meaning in the *Water Act 2000* and means an area of reasonably flat land adjacent to a watercourse that—

- (a) is covered from time to time by floodwater overflowing from the watercourse; and
- (b) does not, other than in an upper valley reach, confine floodwater to generally follow the path of the watercourse; and
- (c) has finer sediment deposits than the sediment deposits of any bench, bar or in-stream island in the watercourse.

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.

Foliage cover means the proportion of the ground, which would be shaded if sunshine came from directly overhead and is defined for each stratum. It includes branches and leaves and is similar to the crown type of Walker and Hopkins (1990) but is applied to a stratum or plot rather than an individual crown.

Hazard category means a category, either low significant or high, into which a dam is assessed as a result of the application of tables and other criteria in "Manual for Assessing Hazard Categories and Hydraulic Performance of Dams", prepared by the Department of Environment and Resource Management, as amended from time to time.

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.

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 on DERM's website under www.derm.qld.gov.au.

Impulsive noise means sound characterised by brief excursions of sound pressure (acoustic impulses) that significantly exceed the background sound pressure. The duration of a single impulsive sound is usually less than one second.

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_{Aeq}, adj, 15 mins means the A-weighted sound pressure level of a continuous steady sound, adjusted for tonal character, that within any 15 minute period has the same square sound pressure as a sound level that varies with time.

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.

Lake means:

- o a lagoon, swamp or other natural collection of water, whether permanent or intermittent; and
- o the **bed and banks** and any other element confining or containing the water.

Limited petroleum activities mean only the following petroleum activities:

- o well sites not exceeding 1 hectare disturbance and multi-well sites not exceeding 1.5 hectare disturbance. Well sites may include the following infrastructure:
 - well pads;
 - water pumps and generators associated with well operations;
 - sumps for storing drilling muds;
 - flare pits;
 - ponds used to contain and / or store stimulation fluid;
- o geophysical surveys (including seismic petroleum activities);
- o ecological geological surveys (including seismic petroleum activities);
- o gathering / flow pipelines from a well head to the initial compression facility;
- o supporting access tracks; and
- o communication and power lines that are necessary for the undertaking of petroleum activities and that are located within well sites, well pads and pipeline right of ways without increasing the disturbance area of petroleum activities.

For clarity, limited petroleum activities exclude and exclusions are not necessarily limited to:

- o the construction of infrastructure for processing or storing petroleum or by-products;
- o low hazard dams (that do not meet the limitations prescribed above);
- o regulated dams;
- o borrow pits;
- o compressor stations;
- o campsites / workforce accommodation;
- o pipelines which are used to transport gas after the initial compression facility (e.g. trunk pipelines, transmission pipelines or pipelines that require a pipeline licence) except for those pipelines authorized under the conditions of Schedule D of the Environmental Authority;
- o waste disposal; or
- o other supporting infrastructure for the project (e.g. sewage treatment plants).

Linear infrastructure means powerlines, roads and access tracks.

Low hazard dam means any dam that is:

- o not classified as high or significant as assessed using the "Manual for Assessing Hazard Categories and Hydraulic Performance of Dams", prepared by the Department of Environment and Resource Management, as amended from time to time; and
- o that contains contaminants in concentrations which exceed the values or range shown in Table 3 of the "Manual for Assessing Hazard Categories and Hydraulic Performance of Dams", prepared by
- o the Department of Environment and Resource Management, as amended from time to time at any time.

Long term noise event is a noise exposure, when perceived at a sensitive receptor, persists for a period of greater than five (5) days, even when there are respite periods when the noise is inaudible within those five (5) days.

Lake means:

- a lagoon, swamp or other natural collection of water, whether permanent or intermittent; and
- the **bed and banks** and any other element confining or containing the water.

Limited petroleum activities mean only the following petroleum activities:

- well sites not exceeding 1 hectare disturbance and multi-well sites not exceeding 1.5 hectare disturbance. Well sites may include the following infrastructure:
 - well pads;
 - water pumps and generators associated with well operations;
 - sumps for storing drilling muds;
 - flare pits;
 - ponds used to contain and / or store stimulation fluid;
- geophysical surveys (including seismic petroleum activities);
- ecological geological surveys (including seismic petroleum activities);
- gathering / flow pipelines from a well head to the initial compression facility;
- supporting access tracks; and
- communication and power lines that are necessary for the undertaking of petroleum activities and that are located within well sites, well pads and pipeline right of ways without increasing the disturbance area of petroleum activities.

For clarity, limited petroleum activities exclude and exclusions are not necessarily limited to:

- the construction of infrastructure for processing or storing petroleum or by-products;
- low hazard dams (that do not meet the limitations prescribed above);
- regulated dams;
- borrow pits;
- compressor stations;
- campsites / workforce accommodation;
- pipelines which are used to transport gas after the initial compression facility (e.g. trunk pipelines, transmission pipelines or pipelines that require a pipeline licence) except for those pipelines authorized under the conditions of Schedule D of the Environmental Authority;
- waste disposal; or
- other supporting infrastructure for the project (e.g. sewage treatment plants).

Linear infrastructure means powerlines, roads and access tracks.

Low hazard dam means any dam that is:

- not classified as high or significant as assessed using the "Manual for Assessing Hazard Categories and Hydraulic Performance of Dams", prepared by the Department of Environment and Resource Management, as amended from time to time; and
- that contains contaminants in concentrations which exceed the values or range shown in Table 3 of the "Manual for Assessing Hazard Categories and Hydraulic Performance of Dams", prepared by
- the Department of Environment and Resource Management, as amended from time to time at any time.

Long term noise event is a noise exposure, when perceived at a sensitive receptor, persists for a period of greater than five (5) days, even when there are respite periods when the noise is inaudible within those five (5) days.

Regrowth vegetation map means a map certified by the chief executive as the regrowth vegetation map for the State and showing for the State:

- areas of regrowth vegetation, identified on the map as high-value regrowth vegetation, that—
 - are any of the following:
 - (i) an endangered regional ecosystem;
 - (ii) an of concern regional ecosystem;
 - (iii) a least concern regional ecosystem; and
 - have not been cleared since 31 December 1989; and
- particular watercourses in the Burdekin, Mackay Whitsunday and Wet Tropics catchments, identified on the map as regrowth watercourses; and
- areas the chief executive decides under section 20AI to show on the map as high value regrowth vegetation.

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 DERM on its website under www.derm.qld.gov.au.

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
- (b) anything that has contained the waste.

Rehabilitation means the process of reshaping and revegetating land to restore it to a stable landform and in accordance with the rehabilitation conditions set out in this environmental authority and where relevant, includes remediation of contaminated land.

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.

Remnant vegetation means vegetation, part of which forms the predominant canopy of the vegetation—

- (a) covering more than 50% of the undisturbed predominant canopy; and
- (b) averaging more than 70% of the vegetation's undisturbed height; and
- (c) composed of species characteristic of the vegetation's undisturbed predominant canopy cover.

Reporting limit means the lowest concentration that can be reliably measured within specified limits of precision and accuracy during routine laboratory operating conditions. For many **analytes**, the reporting limit is selected as the lowest non-zero standard in the calibration curve. Results that fall below the reporting limit will be reported as "less than" the value of the reporting limit. The reporting limit is also referred to as the practical quantitation limit or the limit of quantitation.

Secondary protection zone in relation to a Category A Environmentally Sensitive Area means an area within an 800 metre buffer from the boundary of a primary protection zone.

Secondary protection zone in relation to a Category B or C Environmentally Sensitive Area means a area within a 300 metre buffer from the boundary of a primary protection zone.

Sensitive place means:

- a dwelling (including residential allotment, mobile home or caravan park, residential marina or other residential premises, motel, hotel or hostel; or
- a library, childcare centre, kindergarten, school, university or other educational institution;

- o a medical centre, surgery or hospital; or
- o a protected area; or
- o 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; or
- o a work place used as an office or for business or commercial purposes, which is not part of the petroleum activity(ies) and does not include employees accommodation or public roads.

Sensitive receptor means an area or place where noise (including low frequency, vibration and blasting) is measured investigate whether nuisance impacts are occurring and includes:

- o a dwelling (including residential allotment, mobile home or caravan park, residential marina or other residential premises, motel, hotel or hostel; or
- o a library, childcare centre, kindergarten, school, university or other educational institution;
- o a medical centre, surgery or hospital; or
- o a protected area; or
- o 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; or
- o a work place used as an office or for business or commercial purposes, which is not part of the petroleum activity(ies) and does not include employees accommodation or public roads.

Short term noise event is a noise exposure, when perceived at a sensitive receptor, persists for an aggregate period not greater than eight hours and does not re-occur for a period of at least seven (7) days. Re-occurrence is deemed to apply where a noise of comparable level is observed at the same receptor location for a period of one hour or more, even if it originates from a different source or source location.

Significantly disturbed land or significant disturbance to land or significant disturbance means disturbance to land as defined in section 28 of the *Environmental Protection Regulation 2008*.

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

Species diversity means the diversity within an ecological community that incorporates both species richness and the evenness of species' abundances.

Species richness means the number of different species in a given area.

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.

Suitably 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.

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:

- o exactly what has been assessed and the precise nature of that assessment;
- o the relevant legislative, regulatory and technical criteria on which the assessment has been based;

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

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 *Environmental Protection Act 1994*, and the administering authority for the *Environmental Protection Act 1994* is satisfied that person has knowledge, suitable experience and demonstrated expertise in relevant fields, as set out below:

- knowledge of engineering principles related to the structures, geomechanics, hydrology, hydraulics, chemistry and environmental impact of dams; and
- 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
- a total of five (5) years of suitable experience and demonstrated expertise each, in three (3) of the following categories:
 - investigation and design of dams.
 - construction, operation and maintenance of dams.
 - hydrology with particular reference to flooding, estimation of extreme storms, water management or meteorology.
 - hydraulics with particular reference to sediment transport and deposition, erosion control, beach processes.
 - hydrogeology with particular reference to seepage, groundwater.
 - solute transport processes and monitoring thereof.
 - dam safety.

Synthetic based drilling mud means a mud where the base fluid is a synthetic oil, consisting of chemical compounds which are artificially made or synthesised by chemically modifying petroleum components or other raw materials rather than the whole crude oil.

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.

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.

Valid complaint means a complaint the administering authority considers is not frivolous, nor vexatious, nor based on mistaken belief.

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

Watercourse has the meaning provided in Schedule 12 of the Environmental Protection Regulation 2008 and is a river, creek or stream in which water flows permanently or intermittently in a natural channel, whether artificially improved or not, or in an artificial channel that has changed the course of the watercourse. A watercourse includes the **bed and banks** and any other element of a river, creek or stream confining or containing water.

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.

Wetland means a wetland as defined under the Queensland Wetlands Program and are areas of permanent or periodic / intermittent inundation, with water that is static or flowing fresh, brackish or salt, including areas of marine water, the depth of which at low tide does not exceed six (6) metres. To be classified as a wetland, the area must have one or more of the following attributes:

- at least periodically, the land supports plants or animals that are adapted to and dependent on living in wet conditions for at least part of their life cycle, or
- the substratum is predominantly undrained soils that are saturated, flooded or ponded long enough to develop anaerobic conditions in the upper layers, or
- the substratum is not soil and is saturated with water, or covered by water at some time.

For the purposes of Chapter 5A activities, wetlands do not include springs and watercourse and those wetlands that are defined in the document entitled "*Wetland Mapping and Classification Methodology*" (Department of Environment and Resource Management, 2005) as:

- H2M1 Riverine or ex-riverine (lacustrine) water bodies associated with dams and weirs located in a channel;
- H2M3p Ponded pastures;
- H2M5 Palustrine / lacustrine water bodies where ecological character has changed due to gross mechanical disturbance (e.g. cropping);
- H2M6 Palustrine / lacustrine water bodies that have been converted, completely or mostly, to a ring tank or other controlled storage;
- H2M7 Riverine water bodies that have been converted mostly to canals or irrigation channels;
- H3C1 Artificial stand-alone water storages not within a natural water body or channel; or
- H3C2 Artificial Channel drain / canal –bore drains, swales, bores and irrigation channel overflows / ponding.

Year means a period of 12 months.

END OF PERMIT

Environmental Protection Act 1994
Non – Code Compliant Level 2 Environmental Authority (chapter 5A activities)

DERM Permit¹ Number: PEN202960311

Under section 309X of the *Environmental Protection Act 1994* this permit is issued to:

Principal Holder

Santos Limited
Ground Floor Santos Centre
60 Flinders Street
ADELAIDE SA 5000
ACN: 007 550 923

Joint Holders

Santos Australian Hydrocarbons Pty Ltd
Australia Pacific LNG Pty Ltd
Origin Energy Resources Ltd
Santos Petroleum Pty Ltd
Delhi Petroleum Pty Ltd
Vamgas Pty Ltd

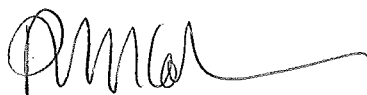
in respect to carrying out a Level 2 chapter 5A activity(ies) as per Section 23 of the *Environmental Protection Regulation 2008* on the relevant resource authorities listed below:

Project Name	Resource Authority Type(s) and Number(s)
Karmona to Yawa Pipeline	Petroleum Pipeline Licence (PPL)169

This environmental authority takes effect from: 16 February 2012.

The anniversary date of this environmental authority is: 16 February.

This environmental authority is subject to the attached schedule of conditions.



16/02/12

Date

Kylie Coleman

Delegate of Administering Authority

Department of Environment and Resource Management

¹ Permit includes licences, approvals, permits, authorisations, certificates, sanctions or equivalent/similar as required by legislation administered by the Department of Environment and Resource Management.

Additional advice about the approval

1. This approval pursuant to the *Environmental Protection Act 1994* does not remove the need to obtain any additional approval for this activity which might be required by other State and/or Commonwealth legislation. Other legislation administered by DERM for which a permit may be required includes but is not limited to the:

- *Aboriginal Cultural Heritage Act 2003*;
- The contaminated land provisions of the *Environmental Protection Act 1994*;
- *Nature Conservation Act 1992*;
- *Forestry Act 1959*;
- *Water Supply (Safety and Reliability) Act 2008*; and
- *Water Act 2000*.

Applicants are advised to check with all relevant statutory authorities and comply with all relevant legislation.

2. This approval, issued under the *Environmental Protection Act 1994*, for the carrying out of a non-code compliant level 2 petroleum activity(ies) is not an authority to impact on water levels or pressure heads in groundwater aquifers in, or surrounding, coal seams. The holder of this environmental authority will have obligations to minimise or mitigate any such impact under other Queensland Government and Australian Government legislation.
3. This approval does not authorise environmental harm unless a condition contained in this environmental authority explicitly authorises that harm. Where there is no condition, the lack of a condition shall not be construed as authorising harm.
4. Terms defined in Schedule M of this environmental authority are **bolded**.
5. This environmental authority consists of the following Schedules
 - Schedule A General Conditions
 - Schedule B Water
 - Schedule C Dams
 - Schedule D Land
 - Schedule E Disturbance to Land
 - Schedule F Environmental Nuisance
 - Schedule G Waste
 - Schedule H Rehabilitation
 - Schedule I Stimulation Activities
 - Schedule J Community Issues
 - Schedule K Notification
 - Schedule L Definitions

SCHEDULE A – GENERAL CONDITIONS

Authorised activities

- (A1) This environmental authority authorises activities for the construction of an oil pipeline on PPL169 for the purpose of transportation of petroleum product (oil).
- (A2) In the carrying out of the petroleum activity(ies), the holder of this environmental authority must not exceed the number and maximum size for each of the specified petroleum activities listed in Schedule A, Table 1 – Authorised Petroleum Activities and Pipeline Location for each petroleum tenure.

Schedule A, Table 1 – Authorised Petroleum Activities and Pipeline Location

Petroleum Licence No.	Petroleum Activity	Maximum size / length	GDA Zone	Latitude	Longitude
PPL169	Karmona East Manifold (start point)	DN150 / 13km	94	-27° 16' 54.10" S	141° 53' 55.74" E
	Yawa 1 Lease (end point)		94	-27° 22' 38.45" S	141° 55' 17.96" E
	CP				
	Start point	~	94	-27° 16' 54.10" S	141° 53' 55.74" E
	End point		94	-27° 22' 38.45" S	141° 55' 17.96" E
	Third Party Crossing – (Monitoring Point)		94	-27° 17' 56.04" S	141° 53' 49.95" E

Financial assurance

- (A3) The holder of this environmental authority must:
- calculate a **financial assurance** as required by the administering authority; and
 - attach a completed Schedule of Disturbance to the original and any amended work program or development plan; and
 - 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
 - maintain the financial assurance until the administering authority is satisfied that no claim is likely to be made on the assurance.

Contingency Plan for Emergency Environmental Incidents

- (A4) A Contingency Plan for Emergency Environmental Incidents which has been **certified** by a **suitably qualified person** must be developed prior to the carrying out of the petroleum activity(ies).
- (A5) The Contingency Plan for Emergency Environmental Incidents must include, but not necessarily be limited to:
- a clear definition of what constitutes an environmental emergency incident or near miss for the petroleum activity(ies) authorised to be carried out under this environmental authority;
 - identification of the types of environmental incidents that may occur, including but not

limited to flooding impacts, relevant to the petroleum activity(ies) authorised to be carried out under this environmental authority;

- (c) response procedures to be implemented to prevent or minimise the risk of environmental harm arising from environmental emergency incidents;
- (d) notification and reporting procedures (internal and external);
- (e) call-out procedures and contact lists;
- (f) measures required to halt the spill (i.e. control of pumps, valves etc);
- (g) spill containment procedures;
- (h) procedures to safely recover the spilt material;
- (i) impact monitoring programs and procedures including a receiving environment monitoring program, to be specifically implemented in the event of a release to **waters** or land to examine / assess environmental impacts. For monitoring of **waters**, this program must include upstream, downstream and impact site monitoring procedures. For soils monitoring, three replicate samples must be taken at depth intervals of 0-10 cm, 20-30 cm and 50-60 cm at both a reference site and the impact site as a minimum;
- (j) clean up and **rehabilitation** procedures;
- (k) requirements for the remediation or disposal of contaminated soil;
- (l) personnel responsibilities and training;
- (m) equipment requirements, location, storage, maintenance and transport;
- (n) communications and reporting; and
- (o) incident investigation procedures.

- (A6) The holder of this environmental authority must implement the Contingency Plan for Emergency Environmental Incidents.

Spill response

- (A7) A spill response plan must be developed for all pipelines and other plant or equipment under this environmental 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) impact monitoring programs and procedures;
 - (h) clean up and rehabilitation procedures;
 - (i) requirements for the remediation or disposal of contaminated soil;
 - (j) personnel responsibilities;
 - (k) equipment requirements, location, storage, maintenance and transport;
 - (l) communications and logistics; and
 - (m) incident investigation procedures.

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Infrastructure

- (A8) All above ground **infrastructure** used for the petroleum activities must be removed prior to surrender of this environmental authority, except where it is to remain under a resource authority pursuant to *Petroleum and Gas (Production and Safety) Act 2004*, or with the written agreement of the administering authority and the post **petroleum authority** landowner/holder.

Monitoring

- (A9) The holder of this environmental authority must:
- (a) develop a monitoring program that will demonstrate compliance with the relevant conditions of the environmental authority; and
 - (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.
- (A10) All monitoring under this environmental authority must be conducted by a suitably qualified **person**.
- (A11) All instruments, equipment and measuring devices used for measuring or monitoring in accordance with any condition of this environmental authority must be calibrated, operated and maintained effectively in accordance with the manufacturer's specifications.
- (A12) All laboratory analyses and tests required to be conducted under this environmental authority must be carried out by a laboratory that has **NATA accreditation** for such analyses and tests, except as otherwise authorised by the administering authority.

Maintenance of Measures, Plant and Equipment

- (A13) The holder of the environmental authority must:
- (a) install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority;
 - (b) maintain such measures, plant and equipment in their proper and effective condition; and
 - (c) operate such measures, plant and equipment in a proper and effective manner.
- (A14) No change, replacement or alteration of any plant or equipment is permitted if the change, replacement or alteration materially increases, or is likely to increase, the environmental harm caused by the petroleum activity(ies).

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SCHEDULE B - WATER

Contaminant Release

- (B1) Contaminants must not be directly or indirectly **released** to any **waters** except as permitted under this environmental authority.

River Improvement Areas

- (B2) All measures must be taken to prevent and/or minimise negative impacts to, or reversal of, any river improvement works carried out in River Improvement Areas by Queensland's River Improvement Trusts.

Floodplains

- (B3) Where the petroleum activity(ies) is carried out on floodplains, the holder of this environmental authority must ensure that the petroleum activity(ies) does not:
- (a) concentrate flood flows in a way that will or may cause or threaten an adverse environmental impact; or
 - (b) divert flood flows from natural drainage paths and alter flow distribution; or
 - (c) increase the local duration of floods; or
 - (d) increase the risk of detaining flood flows; or
 - (e) pose an unacceptable risk to the safety of persons from flooding; or
 - (f) pose an unacceptable risk of damage to property from flooding.

Watercourse, lake, wetland or spring

- (B4) Unless otherwise authorised under this environmental authority, petroleum activity(ies) that require earthworks, vegetation **clearing** and / or placing **fill**, other than that associated with the construction of **linear infrastructure**, is not permitted in or within:
- (a) 200 metres from any **wetland, lake or spring**; or
 - (b) 100 metres of the **high bank** of any other **watercourse**.
- (B5) Works for linear infrastructure may be undertaken within 200 metres of, and in a wetland, lake or spring or within 100 meters of, and in a watercourse where there is no reasonable and practicable alternative and only for a maximum period of 10 **business days**, provided that the works are conducted in accordance with the following order of preference:
- (a) conducting work in times of no flow;
 - (b) conducting work in times of flow but in a way that does not:
 - (i) adversely impact the flow of water within the watercourse; or
 - (ii) permanently impound water; or
 - (iii) permanently divert the course of flow of water.
- (B6) Works for linear infrastructure resulting in **significant disturbance** to the **bed and banks** of a watercourse, wetland, lake or spring must:
- (a) be no greater than the minimum area necessary for the purpose of the significant disturbance;
 - (b) be designed and undertaken by a suitably qualified person taking into account the matters listed in the "Planning Activities" and "Impact Management During Activities" sections of the Department of Environment and Resource Management's "Guideline – Activities in a

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watercourse, lake or spring associated with mining operations" December 2010, as amended from time to time; and

- (c) upon cessation of the works, commence rehabilitation immediately.
- (B7) Sediment control measures must be implemented to minimise any increase in water turbidity due to works for linear infrastructure in the **bed and banks** of a watercourse, wetland, lake or spring.
- (B8) Routine, regular and frequent visual monitoring must be undertaken while carrying out works for linear infrastructure and any maintenance of completed works in a watercourse, wetland, lake or spring.
- (B9) If, due to works for linear infrastructure, water turbidity increases in a watercourse, wetland, lake or spring outside contained areas, works must cease and the sediment control measures must be rectified to limit turbidity before the works recommence.
- (B10) The extraction of groundwater as part of the petroleum activity(ies) from underground aquifers must not directly or indirectly cause environmental harm to any watercourse, lake, wetland or spring.

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SCHEDULE C – DAMS

(C1) **Regulated dams** are not permitted under this environmental authority.

Management of dams

- (C2) **Low hazard dams** must be designed with a floor and sides made of material to contain the wetting front and any entrained contaminants within the bounds of the containment system during its operational life, including any period of decommissioning and rehabilitation.
- (C3) All low hazard dams must be designed and constructed, operated and maintained in accordance with **accepted engineering standards** currently appropriate for the purpose for which they are intended.
- (C4) The **hazard category** of each low hazard dam must be determined by a **suitably qualified and experienced person**:
- (a) prior to its **construction**; or
 - (b) within 120 **business days** of the date of grant of this environmental authority for existing low hazard dams; and
 - (c) prior to any change in its purpose or stored contents.
- (C5) Where the hazard category of a low hazard dam is for the first time **assessed** as significant or high, the holder of this environmental authority must:
- (a) apply to amend this environmental authority to a **level 1 environmental authority** within 30 business days of the assessment; and
 - (b) ensure that the dam meets the **hydraulic performance** required of the assessed hazard category within 12 **months** of that assessment.
- (C6) 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.
- (C7) In the event of early signs of loss of structural or hydraulic integrity of a low hazard dam, the holder of this environmental authority must immediately take action to prevent or minimise any actual or potential environmental harm.

Access to dams

- (C8) Any low hazard dam constructed as part of the petroleum activity(ies) 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.

Decommissioning dams

- (C9) Each low hazard dam must be decommissioned such that it either:
- (a) no longer contains **flowable substances**; and
 - (b) becomes a **stable** landform; and
 - (c) is compliant with the rehabilitation requirements of this environmental authority; or

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- (d) 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; or
- (e) is approved or authorised under relevant legislation for a **beneficial use**; or
- (f) becomes a **void** authorised by the administering authority to remain after decommissioning.



SCHEDULE D - LAND

Contaminated releases

- (D1) Contaminants must not be directly or indirectly released to land except as permitted under this environmental authority.

Soil Management

- (D2) 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.
- (D3) Highly erodible soils must not be disturbed as a result of the carrying out of the petroleum activity(ies).

Chemical Storage

- (D4) This environmental authority does not authorise chemical storage in excess of:
- (a) total quantity of 10 m³ of:
 - (i) chemicals of class C1 or C2 combustible liquids or dangerous goods class 3 under AS 1940 *The Storage and Handling of Flammable and Combustible Liquids*; or
 - (ii) storing a total of 50t or more of chemicals of dangerous goods class 1 or class 2, division 2.3; or
 - (b) 50 tonnes or more of chemicals of dangerous goods class 6, division 6.1 in containers capable of holding at least 900 kg of the chemicals.

Sewage Treatment Works

- (D5) The construction and operation of sewage treatment works is authorised if:
- (a) the combined total daily peak design capacity is less than 21 **equivalent persons**; or
 - (b) it is operated as a no-release works.

Extracting material

- (D6) Extracting material greater than 500 tonne a year is not permitted under this environmental authority.

Pipeline construction

- (D7) Pipeline construction corridor must not exceed 15 metres in width.
- (D8) Turn around and work areas associated with pipeline construction must not exceed 50 metres in width.
- (D9) Pipeline trenches must only be left open for the minimum time practicable.
- (D10) The length of pipeline trench open at any one time must be minimised as far as practicable.
- (D11) Pipelines must be preferentially located alongside existing linear infrastructure.
- (D12) Measures must be employed to prevent fauna entrapment in pipe sections or within the pipeline trench.



- (D13) Open trenches and pipes must be checked for fauna prior to backfill and any trapped animals removed.

Decommissioning pipelines

- (D14) The holder of this environmental authority must decommission inactive buried pipelines by in-situ decommissioning (abandonment in place).
- (D15) Prior to pipelines and equipment being disconnected they must be drained or vented and cleaned via purging or flushing.
- (D16) Any water used for purging or flushing the 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 dam.

Erosion and Sediment Control Plan

- (D17) An Erosion and Sediment Control Plan which has been certified by a suitably qualified person must be developed prior to the commencement of the petroleum activity(ies) authorised by this environmental authority.
- (D18) The Erosion and Sediment Control Plan must include but not necessarily be limited to:
- (a) managing and / or diverting uncontaminated stormwater run-off around areas disturbed by the petroleum activity(ies) or where contaminants or wastes are stored or handled that may contribute to contamination of waters;
 - (b) ensuring that contaminated stormwater runoff and incident rainfall is collected, treated, reused, or released in accordance with the conditions of this environmental authority;
 - (c) roofing or minimising the size of areas where contaminants or wastes are stored or handled;
 - (d) revegetating disturbed areas as soon as practicable after the completion of works;
 - (e) using materials and or processes (e.g. dry absorbents) to clean up spills that will minimise contamination of waters;
 - (f) placing erosion and sediment control structures to minimise erosion of disturbed areas and prevent the contamination of waters;
 - (g) an inspection and maintenance program for the erosion and sediment control measures;
 - (h) provision for adequate access to maintain all erosion and sediment control measures especially during the wet season months from November to April;
 - (i) additional erosion and sediment control measures for construction of pipelines on slopes >10%;
 - (j) a surface water monitoring program designed to detect impacts from sediment runoff into waters;
 - (k) identification of remedial actions required to ensure compliance with the conditions of this environmental authority; and
 - (l) details of community consultation strategies and processes to be used in further developing and implementing the Erosion and Sediment Control Plan.



- (D19) The holder of this environmental authority must implement the Erosion and Sediment Control Plan.



SCHEDULE E - DISTURBANCE TO LAND

Pre-disturbance assessment

- (E1) Prior to conducting petroleum activities that involve **significant disturbance to land**, an assessment must be undertaken of the condition, type and ecological value of soils and vegetation in such areas where the activity is proposed to take place.
- (E2) The assessment required by condition (E1) must be undertaken by a **suitably qualified person** and include the carrying out of field validation surveys, observations and mapping of any **Category A, B or C Environmentally Sensitive Areas, wetlands** and the presence of species classed as endangered, vulnerable, rare or near threatened under the *Nature Conservation Act 1992*.
- (E3) The assessment required by condition (E1) must include, but not necessarily be limited to:
- (a) baseline soils quality data and maps for the soil units to be disturbed as provided for in the Soils Management Plan;
 - (b) identification of the vegetation communities present (including species composition and regional ecosystem type² for native vegetation communities) within each area(s) to be disturbed;
 - (c) data representing each vegetation community present within each area(s) to be rehabilitated including:
 - (i) flora **species richness** and diversity;
 - (ii) structural data including woody stem count densities for dominant species within each stratum; and
 - (iii) percent **foliage cover** (accounting for seasonal variation and excluding **declared pest plants**);
 - (d) data regarding habitat features, including but not necessarily limited to:
 - (i) organic litter cover (%); and
 - (ii) trees with hollows $\geq 10\text{cm}$ diameter (count and number per hectare);
 - (iii) hollow bearing logs (count and number per hectare); and
 - (iv) fallen woody material (total length of logs $\geq 10\text{ cm}$ diameter per hectare and number of logs $\geq 10\text{cm}$ diameter per hectare); and
 - (e) a map or series of maps of suitable scale displaying the distributing of vegetation communities.
- (E4) If the assessment required by conditions (E1) to (E3) indicates that that an Environmentally Sensitive Area or wetland is incorrectly identified through State mapping, or is present and not identified by State mapping, the holder of this environmental authority must advise the administering authority in writing before any significant disturbance to land takes place.
- (E5) If, within the 20 business days following the lodgement of the notification under condition (E4) the administering authority notifies the holder of this environmental authority, in writing, that further validation of the Environmentally Sensitive Area or wetland is required, then significant disturbance to land within the relevant area is prohibited until the administering authority provides written advice that significant disturbance to land may proceed.

¹ Regional ecosystem type should be established using the most current version of the Qld Government's "Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland". Assessment of the vegetation communities should be sufficient to establish any inherent variation within a single regional ecosystem type.

Vegetation Clearing

- (E6) A maximum area of 19 hectares of remnant and high value regrowth vegetation may be cleared within the PPL169 boundary for the pipeline right of way, turnaround bays, access tracks and pipe stringing areas comprising:
- (a) remnant vegetation – 19 ha; and
 - (b) high value regrowth vegetation – 0 ha.

Environmentally Sensitive Areas (ESAs)

- (E7) Petroleum activities must not be carried out in Category A, B or C Environmentally Sensitive Areas.
- (E8) The holder of this environmental authority, must ensure that clearing of **remnant vegetation** shall not exceed ten (10) metres in width for the purpose of establishing tracks and 20 metres in width for dual carriageway roads unless otherwise approved by the administering authority in writing.
- (E9) The holder of this environmental authority must not clear vegetation or place fill:
- (a) in a way which significantly isolates, fragments or dissects tracts of vegetation resulting in a reduction in the current level of **ecosystem functioning**, ecological connectivity (i.e. stepping stone or contiguous bioregional/local corridor networks) and/or results in an increase in **threatening processes** (e.g. potential impacts associated with edge effects or introduced species);
 - (b) on slopes greater than 10% for activities other than pipelines; or
 - (c) in **discharge areas**.
- (E10) Cleared vegetation must be stockpiled in a manner that facilitates respreading or salvaging and does not impede vehicle, stock or wildlife movements.

Offsets

- (E11) The holder of this environmental authority must enter in to an environmental offset agreement with the administering authority where **significant disturbance to land** with **State significant biodiversity values** cannot be avoided or minimised.
- (E12) The record of significant disturbance must be provided within six (6) **months** of the issue of this environmental authority and the environmental offset agreement must be entered in to within six (6) **months** of the issue of this environmental authority, unless otherwise agreed to by the administering authority.
- (E13) The holder of this environmental authority must implement any environmental offset agreement within twelve (12) **months** of the issue of this environmental authority.

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SCHEDULE F – ENVIRONMENTAL NUISANCE

Release of contaminants to the atmosphere

- (F1) The release of odour, dust or any other airborne contaminant(s), or light from the petroleum activity(ies) must not cause an environmental nuisance at any **sensitive place**.
- (F2) Individual or combined fuel burning equipment that is capable of burning at least 500 kg in an hour is not permitted under this environmental authority.

Noise

- (F3) A Noise Management Plan which has been certified by a suitably qualified person must be developed prior to the commencement of the petroleum activity(ies) authorised under this environmental authority.
- (F4) The Noise Management Plan must include, but not necessarily be limited to:
 - (a) a commitment by the Chief Executive Officer for the holder of this environmental authority, or their delegate, to ensure adequate allocation of staff and resources to the establishment and operation of the Noise Management Plan;
 - (b) definition of roles, responsibilities and authorities within the staffing of the Noise Management Plan;
 - (c) delivery of training to staff and contractors and maintenance of competencies;
 - (d) risk/constraint analysis methods to be undertaken prior to any new operation (e.g. drill site) or installation of new equipment that has the potential to create noise nuisance;
 - (e) procedures and methods to undertake assessments to determine compliance with the noise limits in Schedule F, Table 1 – Noise limits at **Sensitive Receptors** in the event of a **valid complaint** being received and when there are no **alternative arrangements** in place, taking into account any tonal or **impulsive noise** impacts;
 - (f) procedures for handling noise complaints;
 - (g) community liaison and consultation procedures including but not limited to consultation for when night time petroleum activities (i.e. between 10:00 pm and 6:00 am) are likely to exceed 25 dBA;
 - (h) procedures for managing records associated with all aspects of the Noise Management Plan including standardised forms for recording monitoring results and complaints;
 - (i) details of petroleum activities and measured and/or predicted noise levels of noise sources associated with those activities;
 - (j) reasonable and practicable control or abatement measures (including relocating the activity, altering the hours of operation, or having an **alternative arrangement** in place with any potentially affected person) that can be undertaken to ensure compliance with the noise limits in Schedule F, Table 1 – Noise limits at Sensitive Receptors;
 - (k) the level of noise at sensitive receptors that would be achieved from implementing the measures detailed under condition (F4)(j); and
 - (l) mediation processes to be used in the event that noise complaints are not able to be resolved.
- (F5) Prior to undertaking petroleum activities that will result in **short term, medium term or long term noise events** that are likely to impact on a sensitive receptor, the holder of this environmental authority must model or calculate any potential noise emissions from the relevant petroleum activity(ies) to ensure that noise emissions will not exceed the noise levels specified in Schedule F, Table 1 – Noise limits at Sensitive Receptors.
- (F6) The emission of noise from the petroleum activity(ies) authorised under this environmental authority must not result in levels greater than those specified in Schedule F, Table 1 – Noise

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limits at Sensitive Receptors in the event of a valid complaint about noise being made to the administering authority.

Schedule F, Table 1 – Noise Limits at Sensitive Receptors

Time Period	Metric	Short Term Noise Event	Medium Term Noise Event	Long Term Noise Event
7:00 am – 6:00 pm	$L_{Aeq,adj,15\ min}$	45 dBA	43 dBA	40 dBA
6:00 pm – 10:00 pm	$L_{Aeq,adj,15\ min}$	40 dBA	38 dBA	35 dBA
10:00 pm – 6:00 am	$L_{Aeq,adj,15\ min}$	28 dBA	28 dBA	28 dBA
	Max $L_{pA, 15\ mins}$	55 dBA	55 dBA	55 dBA
6:00 am – 7:00 am	$L_{Aeq,adj,15\ min}$	40 dBA	38 dBA	35 dBA

Notes:

- L_{Aeq} and **Max** L_{pA} are to be measured over any 15 minute period
- The noise limits in Table 1 have been set based on the following deemed **background noise levels** * L_{ABG}):

7:00 am – 6:00 pm:	35 dBA
6:00 pm – 10:00 pm:	30 dBA
10:00 pm – 6:00 am:	25 dBA
6:00 am – 7:00 am:	30 dBA

- (F7) If the noise subject to a complaint is tonal or impulsive, the adjustments detailed in Schedule F, Table 2 – Adjustments to be Added to Noise Levels at Sensitive Receptors are to be added to the measured noise level(s) to derive $L_{Aeq, adj, 15\ min}$.

Schedule F, Table 2 – Adjustments to be Added to Noise Levels at Sensitive Receptors

Noise Characteristic	Adjustment to Noise
Tonal characteristic is just audible	+ 2 dBA
Tonal characteristic is clearly audible	+ 5 dBA
Impulsive characteristic is just audible	+ 2 dBA
Impulsive characteristic is clearly audible	+ 5 dBA

- (F8) Where alternative arrangements are in place with an affected person(s) at a sensitive receptor as referred to by condition (F4)(j), the noise limits in Schedule F, Table 1 – Noise limits at Sensitive

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Receptors do not apply at that sensitive receptor for the duration for which the alternative arrangements are in place.

- (F9) 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 (2000) or the most recent version of *AS1055 Acoustics – Description and measurement of environmental noise*.

Vibration and Blasting

- (F10) Blasting activities are not permitted under this environmental authority.

Abrasive Blasting and Surface Coating

- (F11) In carrying out abrasive blasting and surface coating activities, the environmental authority holder must comply with the Code of Environmental Compliance for certain aspects of Mobile and Temporary Abrasive Blasting.
- (F12) Where abrasive blasting or surface coating activities are to be carried out over water, on land below the highest astronomical tide or on land subject to 1:10 year flood regime, the holder of this environmental authority must carry out the activity in accordance with the requirements and procedures outlined in the following DERM guidelines to prevent the release of contaminants to waters:
- (a) over-water abrasive blasting in marine and other aquatic environments (guideline); and
 - (b) over-water abrasive blasting – environmental risk assessment (information sheet).



SCHEDULE G – WASTE

General waste management

- (G1) All general waste must only be removed from the site and sent to a recycling facility or disposal facility licensed to accept the waste under the *Environmental Protection Act 1994*.

Regulated waste

- (G2) All **regulated waste** must only be removed from the site by a person who holds a current authority to transport such waste under the provisions of the *Environmental Protection Act 1994* and sent to a recycling facility or disposal facility licensed to accept the waste.
- (G3) Regulated waste generated in carrying out the petroleum activit(ies) can be temporarily stored on 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.
- (G4) 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.
- (G5) All waste fluids and muds resulting from drilling and exploration activities must be contained in an appropriately constructed dam or containment structure for off site disposal.

Waste burning

- (G6) Waste must not be burned or be allowed to be burned under this environmental authority unless it is vegetation and is authorised in writing under the *Forestry Act 1959*.

Storage

- (G7) All containment systems for waste liquids stored on site that have the potential to cause environmental harm must be designed to minimise rainfall collection within the system.

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SCHEDULE H – REHABILITATION

Analogue Site for Rehabilitation Monitoring

- (H1) The holder of this environmental authority must identify, map and survey **analogue sites** for measuring the success of rehabilitation activities on **significantly disturbed land** prior to rehabilitation activities commencing.

Progressive Rehabilitation for Significantly Disturbed Land

- (H2) Pipelines trenches must be backfilled immediately after pipe laying and rehabilitated as soon as practicable but not longer than three (3) months after completion.
- (H3) During backfilling of pipeline trenches, soils must be replaced so that the soil horizons are consistent with the soil horizons of the immediately surrounding area.
- (H4) Backfilled and rehabilitated pipeline trenches must:
- (a) be a stable landform;
 - (b) exhibit no subsidence or erosion gullies for the life of the operational pipeline; and
 - (c) be re-profiled to a level consistent with surrounding soils; and
 - (d) be re-profiled to original contours and established drainage lines; and
 - (e) be visually consistent with the surround land features; and
 - (f) be vegetated with groundcover as a minimum to ensure that erosion is minimised; and
 - (g) be free of any **declared pest plants**.
- (H5) Progressive rehabilitation of significantly disturbed land caused by the carrying out of the petroleum activity(ies) (other than constructing pipelines) which is not required for the ongoing conduct of the petroleum activity(ies) must commence as soon as practicable, but not longer than nine (9) months following the completion of any construction or operational works associated with the petroleum activity(ies).
- (H6) Progressive rehabilitation of significantly disturbed land caused by the carrying out of the petroleum activity(ies) must be undertaken in accordance with the Schedule of Disturbance as submitted to the administering authority as part of the financial assurance calculations.
- (H7) Progressive rehabilitation of significantly disturbed land caused by the carrying out of the petroleum activity(ies) must:
- (a) remediate any contaminated land (e.g. contaminated soils, decommissioned dams containing salt);
 - (b) reshape all significantly disturbed land to a stable landform;
 - (c) reprofile all significantly disturbed land to original contours;
 - (d) on all significantly disturbed land:
 - (i) re-establish surface drainage lines;
 - (ii) reinstate the top layer of the soil profile;
 - (iii) establish groundcover to ensure that erosion is minimised;
 - (iv) establishing vegetation of similar species composition and density cover to the analogue site;
 - (e) undertake rehabilitation in a manner such that any actual and potential acid sulfate soils in or on the site are either not disturbed, or submerged, or are treated to prevent and / or minimise environmental harm.

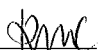
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Final Acceptance Criteria for Significantly Disturbed Land

- (H8) All significantly disturbed land caused by the carrying out of the petroleum activity(ies) must be rehabilitated to meet the following final acceptance criteria:
- (a) For all land use(s):
- (i) all significantly disturbed land is reinstated to the pre-disturbed soil suitability class;
 - (ii) the landform is safe for humans and fauna;
 - (iii) the landform is stable with no subsidence or erosion gullies for at least three (3) years;
 - (iv) all significantly disturbed land is reinstated so that the distribution of vegetation communities represents that of the analogue site;
 - (v) the water quality of any residual void or water bodies constructed by the petroleum activity(ies) meets criteria for subsequent uses and does not have potential to cause environmental harm;
 - (vi) there is no ongoing contamination to waters;
 - (vii) the rehabilitated land is free of any declared pest plants;
 - (viii) there is no ongoing contamination to groundwater from dams or monocells (demonstrated via groundwater monitoring and leak detection monitoring systems); and
 - (ix) the maintenance requirements for rehabilitated land is no greater than that required for the land prior to its disturbance caused by carrying out the petroleum activity(ies).
- (b) Additional requirements for sites that are being reinstated to native ecosystems:
- (i) each vegetation community must be re-established so that the following rehabilitation parameters are maintained for at least three (3) years:
 - (ii) the rehabilitated site shows distinct and progressive re-establishment of the various strata which characterise the vegetation community in the analogue site;
 - (iii) all dominant species within each strata are re-established at densities equivalent to that of the analogue site;
 - (iv) notwithstanding (H8) (b)(i) and (H8) (b)(ii), a minimum of 70% **species richness** and **species diversity** is observed when compared to the relevant analogue site;
 - (v) a minimum of 50% **foliage cover** is observed when compared to the relevant analogue site;
 - (vi) each vegetation community must be rehabilitated and maintained until it can be demonstrated that it is resilient and self-sustaining (demonstrated by reproduction and colonisation); and
 - (vii) percent organic litter cover, count and density of hollow bearing logs and nest boxes (as replacement for trees with hollows $\geq 10\text{cm}$ diameter) and fallen woody material (total length of logs $\geq 10\text{ cm}$ diameter per hectare and number of logs $\geq 10\text{cm}$ per hectare) have been installed at numbers and densities no lower than the analogue site.

Rehabilitation Monitoring Program

- (H9) A Rehabilitation Monitoring Program which has been certified by a suitably qualified person must be developed by 11 May 2012.
- (H10) The Rehabilitation Monitoring Program must include, but not necessarily be limited to:
- (a) methods to measure subsidence and erosion rates at rehabilitated buried transmission pipeline corridors and buried flow lines;



- (b) monitoring of indicators identified in the Rehabilitation Plan at analogue sites to measure progressive and final rehabilitation success relevant to the final land use(s); and
 - (c) frequency and seasonality of monitoring analogue sites and rehabilitated areas to **assess** rehabilitation success; and
 - (d) identification of the experimental design for analysing analogue and rehabilitated site data including statistical methods of analyses.
- (H11) The holder of this environmental authority must implement the Rehabilitation Monitoring Program.

Monitoring of Progressive Rehabilitation

- (H12) Regular maintenance and at least yearly monitoring of rehabilitated areas must take place to measure compliance with condition (H4) and (H7) .

Monitoring of Final Rehabilitation Success

- (H13) Final acceptance criteria are deemed to be met when monitoring of rehabilitated areas demonstrate compliance with the requirements of condition (H8) for three (3) consecutive years.

Transition of petroleum authority

- (H14) The holder of this 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 resource authority over that land which now forms part of the current project.

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SCHEDULE I – WELL DRILLING, COMPLETION AND STIMULATION

- (I1) **Oil based drilling muds** must not be used in the carrying out of the petroleum activity(ies).
- (I2) **Synthetic based drilling muds** must not be used in the carrying out of the petroleum activity(ies).
- (I3) **Stimulation** activities are not permitted under this environmental authority.

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SCHEDULE J – COMMUNITY ISSUES

- (J1) The holder of this environmental authority must maintain a record of all valid complaints and incidents causing environmental harm, and actions taken in response to the valid complaint or incident.
- (J2) The holder of this environmental authority must record the following details for all valid complaints received:
- (a) name, address and contact number for valid complainant;
 - (b) time and date of valid complaint;
 - (c) reasons for the complaint as stated by the valid complainant;
 - (d) investigations undertaken in response to the valid complaint;
 - (e) conclusions formed;
 - (f) actions taken to resolve the valid complaint;
 - (g) any abatement measures implemented to mitigate the cause of the valid complaint; and
 - (h) name and contact details of the person responsible for resolving the valid complaint.

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SCHEDULE K – NOTIFICATION PROCEDURES

- (K1) The holder of this environmental authority must telephone the Department of Environment and Resource Management's Pollution Hotline (telephone: 1300 130 372) and any affected landholder, occupier or their nominated representative as soon as reasonably practicable, but within 24 hours after becoming aware of:
- (a) a release of contaminants as provided for in condition (K3) ; or
 - (b) any event where environmental harm (excluding environmental nuisance) has been caused or may be caused.
- (K2) Notwithstanding condition (K1) , the holder of this environmental authority must telephone the Department of Environment and Resource Management's Pollution Hotline (telephone: 1300 130 372) as soon as reasonably practicable, but within 24 hours after becoming aware of:
- (a) any non-compliance with any condition of this environmental authority other than in relation to a release of contaminants; or
 - (b) a potential or actual loss of structural or hydraulic integrity of a dam; or
 - (c) any incident where there is a potential or actual loss of well integrity (e.g. when the annulus pressure during stimulation increases by more than 3.5 MPa from the pressure immediately preceding stimulation).
- (K3) Subject to condition (K1) , the holder of this environmental authority must report spills of contaminants (including but not limited to hydrocarbons) of the following volumes or kind:
- (a) releases of any volume of contaminants to water;
 - (b) releases of volumes of contaminants to land greater than:
 - (i) 200L of hydrocarbons; or
 - (ii) 200 L of stimulation additives; or
 - (iii) 500 L of stimulation fluids; or
 - (iv) 1000 L of **brine**; or
 - (v) 5 000 L of coal seam gas water;
 - (c) any other release not authorised under this environmental authority which has caused or has the potential to cause serious or material environmental harm.
- (K4) The notification of emergencies or incidents as required by conditions (K1) and (K3) must include but not be limited to the following information:
- (a) the environmental authority number and name of the holder;
 - (b) the tenure type and number where the emergency or incident occurred;
 - (c) the name and telephone number of the designated contact person;
 - (d) the location of the emergency or incident (GDA94);
 - (e) the date and time that the emergency or incident occurred;
 - (f) the date and time the holder of this environmental authority became aware of the emergency or incident;
 - (g) details of the nature of the event and the circumstances in which it occurred;
 - (h) the estimated quantity and type of any contaminants involved in the incident;
 - (i) the actual or potential suspected cause of the emergency or incident;
 - (j) a description of the land use at the site of the emergency or incident (e.g. grazing, pasture, forest etc) and/or the name of any relevant waters and other environmentally sensitive features;

- (k) a description of the possible impacts from the emergency or incident;
 - (l) a description of whether stock and/or wildlife were actually or potentially exposed to any contaminants released and measures taken to prevent access for the duration of the emergency or incident;
 - (m) any sampling conducted or proposed, relevant to the emergency or incident;
 - (n) landholder details and details of landholder consultation;
 - (o) immediate actions taken to control the impacts of the emergency or incident and how environmental harm was mitigated at the time of the emergency or incident; and
 - (p) whether further examination/root cause analysis is required and if so, the expected date by when this examination will be completed and reported to the administering authority.
- (K5) Within ten (10) business days following the initial notification unless a longer time is agreed to by the administering authority, a written report must be provided to the administering authority, including the following (where relevant to the emergency or incident):
- (a) the information required by condition (K4) (a) – (K4) (p);
 - (b) the root cause of the emergency or incident;
 - (c) the confirmed quantities and types of any contaminants involved in the incident;
 - (d) results and interpretation of any analysis of samples taken at the time of the emergency or incident
 - (e) (including the analysis results of any impact monitoring);
 - (f) a final assessment of the impacts from the emergency or incident including any actual or potential environmental harm that has occurred or may occur in the longer term as a result of the release;
 - (g) the success or otherwise of actions taken at the time of the incident to prevent or minimise environmental harm;
 - (h) results and current status of landholder consultation, including commitment to resolve any outstanding issues/concerns; and
 - (i) actions and/or procedural changes to prevent a recurrence of the emergency or incident.
- (K6) If groundwater contamination caused by the petroleum activity(ies) is encountered, the following must be reported to the administering authority within ten (10) business days following the initial notification of results indicating significant change:
- (a) the level of environmental harm caused as a result of such contamination to soils and groundwater;
 - (b) the conduct of a geodetic survey of all monitoring bores to determine the relative water surface elevations of each bore and reported in metres relative to the **AHD**; and
 - (c) the determination of groundwater flow direction, groundwater flow rate and hydraulic conductivity.

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SCHEDULE L – DEFINITIONS

Note: Where a term is not defined in this environmental authority, the definition in the *Environmental Protection Act 1994*, its regulations and Environmental Protection Policies, or the *Acts Interpretations Act 1954*, or the Macquarie Dictionary, 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.

AHD means Australian Height Datum and is the datum used for the determination of elevations in Australia. The determination uses a national network of benchmarks and tide gauges and sets mean sea level at zero elevation

Alternative arrangement means a written agreement between the holder of this environmental authority and an affected or potentially affected person at a sensitive receptor for a defined noise nuisance impact and may include an agreed period of time for which the arrangement is in place. An agreement for alternative arrangement may include, but not necessarily be limited to a range of noise abatement measures to be installed at a sensitive receptor and / or provision of alternative accommodation for the duration of the defined noise nuisance impact.

Analogue site means an area of land which contains values and characteristics representative of an area to be rehabilitated prior to disturbance. Such values must encompass land use, topographic, soil, vegetation and other ecological characteristics. Analogue sites can be the pre-disturbed site of interest where significant surveying effort has been undertaken to establish benchmark parameters via ground truthing assessments.

Analytes means a chemical parameter determined by either physical measurement in the field or by laboratory analysis.

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.

Brine means saline water with a total dissolved solid concentration greater than 40 000 mg/l.

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.

Business day has the meaning in the *Acts Interpretation Act 1954* and means a day that is not—

- a Saturday or Sunday; or
- a public holiday, special holiday or bank holiday in the place in which any relevant act is to be or may be done; or

Category A Environmentally Sensitive Area means any area listed in Section 25 of the *Environmental Protection Regulation 2008*.

Category B Environmentally Sensitive Area means any area listed in Section 26 of the *Environmental Protection Regulation 2008*.

Category C Environmentally Sensitive Area means any of the following areas:

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- Nature Refuges as defined under the *Nature Conservation Act 1992*;
- Koala Habitat Areas as defined under the *Nature Conservation (Koala) Conservation Plan 2006*;
- State Forests or Timber Reserves as defined under the *Forestry Act 1959*;
- Declared catchment areas under the *Water Act 2000*;
- Resources reserves under the *Nature Conservation Act 1992*
- An area identified as "Essential Habitat" or "Essential Regrowth Habitat" under the *Vegetation Management Act 1999* for a species of wildlife listed as endangered, vulnerable, rare or near threatened under the *Nature Conservation Act 1992*; or
- Of Concern Regional Ecosystems identified in the database maintained by the Department of Environment and Resource Management called 'RE description database' containing Regional Ecosystem numbers and descriptions.

Clearing for vegetation means removing, cutting down, ringbarking, pushing over, poisoning or destroying in any way including by burning, flooding or draining; but does not include destroying standing vegetation by stock, or lopping a tree.

Certification or **certified** by a suitably qualified and experienced person in relation to a design plan, 'as constructed' drawings 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.

Construction in relation to a dam includes building a new dam and modifying or lifting an existing dam but does not include investigations and testing necessary for the purposes of preparing a design plan.

Contaminants are chemicals or pollutants that are not naturally found in the area, and/or chemicals or pollutants at levels above those found naturally in the area.

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*.

DERM means Queensland Department of Environment and Resource Management.

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.

Document has the meaning in the *Acts Interpretation Act 1954* and means:

- any paper or other material on which there is writing; and
- any paper or other material on which there are marks; and
- figures, symbols or perforations having a meaning for a person qualified to interpret them; and

- any disc, tape or other article or any material from which sounds, images, writings or messages are capable of being produced or reproduced (with or without the aid of another article or device).

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.

Equivalent person means an equivalent person under volume 1, section 2 of the "Guidelines for Planning and Design of Sewerage Schemes", October 1991, published by the Water Resources Commission, Department of Primary Industries, Fisheries and Forestry.

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.

Floodplain has the meaning in the *Water Act 2000* and means an area of reasonably flat land adjacent to a watercourse that—

- (a) is covered from time to time by floodwater overflowing from the watercourse; and
- (b) does not, other than in an upper valley reach, confine floodwater to generally follow the path of the watercourse; and
- (c) has finer sediment deposits than the sediment deposits of any bench, bar or in-stream island in the watercourse.

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.

Foliage cover means the proportion of the ground, which would be shaded if sunshine came from directly overhead and is defined for each stratum. It includes branches and leaves and is similar to the crown type of Walker and Hopkins (1990) but is applied to a stratum or plot rather than an individual crown.

Hazard category means a category, either low significant or high, into which a dam is assessed as a result of the application of tables and other criteria in "Manual for Assessing Hazard Categories and Hydraulic Performance of Dams", prepared by the Department of Environment and Resource Management, as amended from time to time.

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.

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 on DERM's website under www.derm.qld.gov.au.

Impulsive noise means sound characterised by brief excursions of sound pressure (acoustic impulses) that significantly exceed the background sound pressure. The duration of a single impulsive sound is usually less than one second.

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_{Aeq, adj, 15 mins} means the A-weighted sound pressure level of a continuous steady sound, adjusted for tonal character, that within any 15 minute period has the same square sound pressure as a sound level that varies with time.

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.

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Lake means:

- a lagoon, swamp or other natural collection of water, whether permanent or intermittent; and
- the **bed and banks** and any other element confining or containing the water.

Limited petroleum activities mean only the following petroleum activities:

- well sites not exceeding 1 hectare disturbance and multi-well sites not exceeding 1.5 hectare disturbance. Well sites may include the following infrastructure:
 - well pads;
 - water pumps and generators associated with well operations;
 - sumps for storing drilling muds;
 - flare pits;
 - ponds used to contain and / or store stimulation fluid;
- geophysical surveys (including seismic petroleum activities);
- ecological geological surveys (including seismic petroleum activities);
- gathering / flow pipelines from a well head to the initial compression facility;
- supporting access tracks; and
- communication and power lines that are necessary for the undertaking of petroleum activities and that are located within well sites, well pads and pipeline right of ways without increasing the disturbance area of petroleum activities.

For clarity, limited petroleum activities exclude and exclusions are not necessarily limited to:

- the construction of infrastructure for processing or storing petroleum or by-products;
- low hazard dams (that do not meet the limitations prescribed above);
- regulated dams;
- borrow pits;
- compressor stations;
- campsites / workforce accommodation;
- pipelines which are used to transport gas after the initial compression facility (e.g. trunk pipelines, transmission pipelines or pipelines that require a pipeline licence) except for those pipelines authorized under the conditions of Schedule D of the Environmental Authority;
- waste disposal; or
- other supporting infrastructure for the project (e.g. sewage treatment plants).

Linear infrastructure means powerlines, roads and access tracks.

Low hazard dam means any dam that is:

- not classified as high or significant as assessed using the "Manual for Assessing Hazard Categories and Hydraulic Performance of Dams", prepared by the Department of Environment and Resource Management, as amended from time to time; and
- that contains contaminants in concentrations which exceed the values or range shown in Table 3 of the "Manual for Assessing Hazard Categories and Hydraulic Performance of Dams", prepared by
- the Department of Environment and Resource Management, as amended from time to time at any time.

Long term noise event is a noise exposure, when perceived at a sensitive receptor, persists for a period of greater than five (5) days, even when there are respite periods when the noise is inaudible within those five (5) days.

Low impact petroleum activities means limited petroleum activities which do not result in the clearing of native vegetation, cause disruption to soil profiles through earthworks or excavation or result in significant disturbance to land. Examples of such activities include but are not necessarily limited to soil surveys, topographic surveys, cadastral surveys and ecological surveys and traversing land by car or foot via existing access tracks or routes or in such a way that does not result in permanent damage to vegetation.

Max $L_{pA, 15 \text{ min}}$ means the absolute maximum instantaneous A-weighted sound pressure level, measured over 15 minutes.

Medium term noise event is a noise exposure, when perceived at a sensitive receptor, persists for an aggregate period not greater than five (5) days and does not re-occur for a period of at least four (4) weeks. Re-occurrence is deemed to apply where a noise of comparable level is observed at the same receptor location for a period of one hour or more, even if it originates from a different source or source location.

Month has the meaning in the *Acts Interpretation Act 1954* and means a calendar month and is a period starting at the beginning of any day of one (1) of the 12 named months and ending—

- immediately before the beginning of the corresponding day of the next named month; or
- if there is no such corresponding day—at the end of the next named month.

NATA accreditation means accreditation by the National Association of Testing Authorities Australia.

Pest means species:

- (a) declared under the *Land Protection (Pest and Stock route Management) Act 2002*;
- (b) declared under Local Government model local laws; and
- (c) which may become invasive in the future.

Petroleum activity(ies) means:

- (a) activities that, under the *Petroleum Act 1923*, are authorised activities for a 1923 Act petroleum tenure under that Act; or
- (b) activities that, under the *Petroleum and Gas (Production and Safety) Act 2004*, are authorised activities for a petroleum authority under that Act; or
- (c) exploring for, exploiting or conveying petroleum resources under a licence, permit, pipeline licence, primary licence, secondary licence or special prospecting authority granted under the *Petroleum (Submerged Lands) Act 1982*; or
- (d) rehabilitating or remediating environmental harm because of an activity mentioned in paragraphs (a) to (c);
- (e) actions taken to prevent environmental harm because of activities mentioned in paragraphs (a) to (d);
- (f) activities required under a condition of an environmental authority for activities mentioned in paragraphs (a) to (e); or
- (g) activities required under a condition of an environmental authority mentioned in paragraphs (a) to (e) that has ended or ceased to have effect, if the condition-
 - (i) continues to apply after the authority has ended or ceased to have effect, and
 - (ii) has not been complied with.

Petroleum authority is:

- (a) a 1923 Act petroleum tenure granted under the *Petroleum Act 1923*; or
- (b) a resource 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*.

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Regrowth vegetation map means a map certified by the chief executive as the regrowth vegetation map for the State and showing for the State:

- areas of regrowth vegetation, identified on the map as high-value regrowth vegetation, that—
 - are any of the following:
 - (i) an endangered regional ecosystem;
 - (ii) an of concern regional ecosystem;
 - (iii) a least concern regional ecosystem; and
 - have not been cleared since 31 December 1989; and
- particular watercourses in the Burdekin, Mackay Whitsunday and Wet Tropics catchments, identified on the map as regrowth watercourses; and
- areas the chief executive decides under section 20AI to show on the map as high value regrowth vegetation.

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 DERM on its website under www.derm.qld.gov.au.

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
- (b) anything that has contained the waste.

Rehabilitation means the process of reshaping and revegetating land to restore it to a stable landform and in accordance with the rehabilitation conditions set out in this environmental authority and where relevant, includes remediation of contaminated land.

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.

Remnant vegetation means vegetation, part of which forms the predominant canopy of the vegetation—

- (a) covering more than 50% of the undisturbed predominant canopy; and
- (b) averaging more than 70% of the vegetation's undisturbed height; and
- (c) composed of species characteristic of the vegetation's undisturbed predominant canopy cover.

Reporting limit means the lowest concentration that can be reliably measured within specified limits of precision and accuracy during routine laboratory operating conditions. For many **analytes**, the reporting limit is selected as the lowest non-zero standard in the calibration curve. Results that fall below the reporting limit will be reported as "less than" the value of the reporting limit. The reporting limit is also referred to as the practical quantitation limit or the limit of quantitation.

Secondary protection zone in relation to a Category A Environmentally Sensitive Area means an area within an 800 metre buffer from the boundary of a primary protection zone.

Secondary protection zone in relation to a Category B or C Environmentally Sensitive Area means a area within a 300 metre buffer from the boundary of a primary protection zone.

Sensitive place means:

- a dwelling (including residential allotment, mobile home or caravan park, residential marina or other residential premises, motel, hotel or hostel; or
- a library, childcare centre, kindergarten, school, university or other educational institution;



- a medical centre, surgery or hospital; or
- a protected area; or
- 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; or
- a work place used as an office or for business or commercial purposes, which is not part of the petroleum activity(ies) and does not include employees accommodation or public roads.

Sensitive receptor means an area or place where noise (including low frequency, vibration and blasting) is measured investigate whether nuisance impacts are occurring and includes:

- a dwelling (including residential allotment, mobile home or caravan park, residential marina or other residential premises, motel, hotel or hostel; or
- a library, childcare centre, kindergarten, school, university or other educational institution;
- a medical centre, surgery or hospital; or
- a protected area; or
- 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; or
- a work place used as an office or for business or commercial purposes, which is not part of the petroleum activity(ies) and does not include employees accommodation or public roads.

Short term noise event is a noise exposure, when perceived at a sensitive receptor, persists for an aggregate period not greater than eight hours and does not re-occur for a period of at least seven (7) days. Re-occurrence is deemed to apply where a noise of comparable level is observed at the same receptor location for a period of one hour or more, even if it originates from a different source or source location.

Significantly disturbed land or **significant disturbance to land** or **significant disturbance** means disturbance to land as defined in section 28 of the *Environmental Protection Regulation 2008*.

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

Species diversity means the diversity within an ecological community that incorporates both species richness and the evenness of species' abundances.

Species richness means the number of different species in a given area.

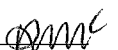
Spring means the land to which water rises naturally from below the ground and the land over which the water then flows.

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.

Suitably 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.

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:

- exactly what has been assessed and the precise nature of that assessment;
- the relevant legislative, regulatory and technical criteria on which the assessment has been based;



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

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 *Environmental Protection Act 1994*, and the administering authority for the *Environmental Protection Act 1994* is satisfied that person has knowledge, suitable experience and demonstrated expertise in relevant fields, as set out below:

- knowledge of engineering principles related to the structures, geomechanics, hydrology, hydraulics, chemistry and environmental impact of dams; and
- 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
- a total of five (5) years of suitable experience and demonstrated expertise each, in three (3) of the following categories:
 - investigation and design of dams.
 - construction, operation and maintenance of dams.
 - hydrology with particular reference to flooding, estimation of extreme storms, water management or meteorology.
 - hydraulics with particular reference to sediment transport and deposition, erosion control, beach processes.
 - hydrogeology with particular reference to seepage, groundwater.
 - solute transport processes and monitoring thereof.
 - dam safety.

Synthetic based drilling mud means a mud where the base fluid is a synthetic oil, consisting of chemical compounds which are artificially made or synthesised by chemically modifying petroleum components or other raw materials rather than the whole crude oil.

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.

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.

Valid complaint means a complaint the administering authority considers is not frivolous, nor vexatious, nor based on mistaken belief.

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

Watercourse has the meaning provided in Schedule 12 of the Environmental Protection Regulation 2008 and is a river, creek or stream in which water flows permanently or intermittently in a natural channel, whether artificially improved or not, or in an artificial channel that has changed the course of the watercourse. A watercourse includes the **bed and banks** and any other element of a river, creek or stream confining or containing water.

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

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waters, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and underground water.

Wetland means a wetland as defined under the Queensland Wetlands Program and are areas of permanent or periodic / intermittent inundation, with water that is static or flowing fresh, brackish or salt, including areas of marine water, the depth of which at low tide does not exceed six (6) metres. To be classified as a wetland, the area must have one or more of the following attributes:

- at least periodically, the land supports plants or animals that are adapted to and dependent on living in wet conditions for at least part of their life cycle, or
- the substratum is predominantly undrained soils that are saturated, flooded or ponded long enough to develop anaerobic conditions in the upper layers, or
- the substratum is not soil and is saturated with water, or covered by water at some time.

For the purposes of Chapter 5A activities, wetlands do not include springs and watercourse and those wetlands that are defined in the document entitled "*Wetland Mapping and Classification Methodology*" (Department of Environment and Resource Management, 2005) as:

- H2M1 Riverine or ex-riverine (lacustrine) water bodies associated with dams and weirs located in a channel;
- H2M3p Ponded pastures;
- H2M5 Palustrine / lacustrine water bodies where ecological character has changed due to gross mechanical disturbance (e.g. cropping);
- H2M6 Palustrine / lacustrine water bodies that have been converted, completely or mostly, to a ring tank or other controlled storage;
- H2M7 Riverine water bodies that have been converted mostly to canals or irrigation channels;
- H3C1 Artificial stand-alone water storages not within a natural water body or channel; or
- H3C2 Artificial Channel drain / canal –bore drains, swales, bores and irrigation channel overflows / ponding.

Year means a period of 12 months.

