

Environmental Protection Act 1994
Level 1 Environmental Authority (chapter 5A activities)

Permit¹ Number: PEN100038407

Under section 310Y(2) of the *Environmental Protection Act 1994* this permit is issued to:

Principal Holder:

Santos GLNG Pty Ltd
Ground Floor, Santos Centre
60 Flinders Street
Adelaide SA 5000

Joint Holder(s):

PAPL (Downstream) Pty Ltd
Total GLNG Australia
KGLNG Liquefaction Pty Ltd

ACN 131 271 648

in respect to carrying out a level 1 chapter 5A activity(ies) as per Section 23 of the *Environmental Protection Regulation 2008* on the relevant resource authorities listed below:

Project Name	Relevant Resource Authority(ies)
Comet Ridge to Wallumbilla Pipeline	Petroleum Pipeline Licence (PPL) 118 Petroleum Survey Licence (PSL) 83

This environmental authority takes effect from 1 September 2014

The anniversary date of this environmental authority is 14 May.

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



1 September 2014

Date

Kimberley Smith

Delegate of Administering Authority
Department of Environment and Heritage Protection

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

1. This approval is for the carrying out the following level 1 chapter 5A activity(ies):

Schedule 5 of the *Environmental Protection Regulation 2008*

7. A petroleum activity, other than a petroleum activity mentioned in items 1 to 7, that includes 1 or more chapter 4 petroleum activities for which an aggregate environmental score is stated, namely:
- Environmentally Relevant Activity (ERA) 8(3)(a) – Storing between 10m³ and 500m³ of chemicals of class C1 or C2 combustible liquids under AS1940 or dangerous goods class 3
 - ERA 15 Fuel burning – Using fuel burning equipment that is capable of burning at least 500kg of fuel in an hour;
 - ERA 17 Abrasive Blasting – consists of cleaning equipment or structures on a commercial basis using a stream of abrasives in either a wet or dry pressure stream;
 - ERA 601(a) Waste Disposal
 - ERA 63(2)(b)(i) – Operating sewage treatment works, other than no-release works, with a total daily peak design capacity of more than 100 to 1500 EP.

2. 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 the Department of Environment and Heritage Protection for which a permit may be required includes but is not limited to the:

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

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

3. This environmental authority does not authorise the taking of protected animals or the tampering with an animal breeding place as defined under the *Nature Conservation Act 1992* and its regulations.
4. It is a requirement under the *Environmental Protection Act 1994* that if an owner or occupier of land becomes aware of a Notifiable Activity (as defined by Schedule 4 of the *Environmental Protection Act 1994*) is being carried out on the land or that the land has been affected by a hazardous contaminant, they must, within 22 business days after becoming so aware, give notice to the Department of Environment and Heritage Protection.

5. Separate to the requirements found in the conditions of this environmental authority, the holder must also meet their obligations under the *Environmental Protection Act 1994*, and the regulations made under that Act. For example, the holder must comply with the following provisions of the Act:
- s319 – general environmental duty
 - s320 – duty to notify environmental harm
 - s440 – offence of causing environmental nuisance
 - s440ZG – offence of depositing prescribed water contaminants in waters and related matters
 - s443 – offence to place contaminant where environmental harm or nuisance may be caused
6. This environmental authority 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.
7. The duty to notify is a requirement contained in the *Environmental Protection Act 1994* which applies to all persons. The duty to notify arises where a person carries out activities and becomes aware of the act of another person arising from or connected to those activities which causes or threatens serious or material environmental harm. If a person carries out a carrying out a chapter 5A activity, such as coal seam gas activities, the law requires that person to notify the administering authority where:
- the activity negatively affects (or is reasonably likely to negatively affect) the water quality of an aquifer; or
 - the activity has caused the unauthorised connection of two or more aquifers.

For more information about the duty to notify, refer to section 320A of the *Environmental Protection Act 1994* and/or the guideline, *The Duty to Notify of Environmental Harm* (EM467), published by the Department of Environment and Heritage Protection.

Terms defined in Schedule M of this environmental authority are **bolded** in this document. Where a term is not defined in this environmental authority, the definition in the *Environmental Protection Act 1994*, its regulations and Environmental Protection Policies, then the *Acts Interpretation Act 1954* then the Macquarie Dictionary then the *Petroleum and Gas (Production and Safety) Act 2004* or its regulations must be used in that order.

8. This environmental authority consists of the following schedules

SCHEDULE A – GENERAL CONDITIONS

SCHEDULE B – ENVIRONMENTAL NUISANCE

SCHEDULE C – WATER

SCHEDULE D – LAND

SCHEDULE E – DISTURBANCE TO LAND

SCHEDULE F – WASTE

SCHEDULE G – COMPRESSOR STATIONS

SCHEDULE H – REHABILITATION

SCHEDULE I – COMMUNITY ISSUES

SCHEDULE J – NOTIFICATION

SCHEDULE K – PETROLEUM SURVEY ACTIVITIES

SCHEDULE L – DEFINITIONS

APPENDIX 1 – Compressor Station Site Layouts

SCHEDULE A – GENERAL CONDITIONS

(A2) In the carrying out of the petroleum activity(ies), the number and maximum size for each of the specified petroleum activities listed in *Schedule A, Table 1 – Authorised Petroleum Activities* for each petroleum tenure must not be exceeded.

(A3) The pipeline corridor must be constructed within the locations outlined in *Schedule A, Table 1 – Authorised Petroleum Activities and Pipeline Location*.

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

Petroleum Licence No.	Petroleum Activity	Maximum Size	Coordinated/Locations (where applicable)	
			Longitude	Latitude
PPL118 PSL 83	KP 0 (start point)	N/A	149.1813	-26.6934
	KP 119.27 (end point)	N/A	148.9295	-25.7537
	Camps			
	Lagoon	6.10 ha	149.1888	-26.6841
	West Myall Road	9.50 ha	148.932	-26.225
	Duck Creek Road	10 ha	148.8004	-25.9266
	Fairview	3.0 ha	148.9280	-25.7685
	Laydowns (Stockpiles) outside of the Right of Way			
	Lagoon	12 ha	149.1883	-26.6882
	West Myall Road	12 ha	148.932	-26.2250
	Duck Creek Road	12 ha	148.8004	-25.9266
	Fairview	6.0 ha	148.9304	-25.7688
	KP0	0.45 ha	149.180110	-26.694529
	KP31	0.02 ha	149.055282	-26.444622
	Vents (Maintenance)			
	Mid-line Vents (Roma)	NA	149.0556	-26.4431
	Wallumbilla Compressor Station Vents	NA	149.1817	-26.6961
	Pipeline Compressor Station (Fairview) Vents	NA	148.9287	-25.7524
	Wallumbilla Manifold Vents	NA	149.181	-26.694
	Sewage Treatment Plants			

<100 equivalent persons (mobile and temporary)	1	NA	NA
<450 equivalent persons (mobile and temporary)	4	NA	NA
Compressor Stations			
Wallumbilla Compressor Station	N/A	149.1817	-26.6961
Pipeline Compressor Station	N/A	148.9287	-25.7524

(A4) Maintenance of Measures, Plant and Equipment

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.

(A5) 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).

Compliance with Australian Pipeline Industry Association Code of Environmental Practice

(A6) Petroleum activities must be undertaken in relation to the operation of petroleum pipelines in accordance with the Australian Pipeline Industry Association *Code of Environmental Practice – Onshore Pipelines*, October 2009 (the code) or subsequent versions thereof. To the extent of any inconsistency between the conditions of this environmental authority and the Code, the conditions of this authority prevail.

Financial assurance

- (A7) Financial assurance must be given to the administering authority before petroleum activities are carried out under this environmental authority
- (A8) Prior to carrying out petroleum activities which would result in changes to the maximum schedule of disturbance since the last financial assurance calculation was submitted, the holder of the environmental authority must submit, and the administering authority must have approved, an application to amend their financial assurance.

Third Party Audit

- (A9) A **third party auditor**, nominated by the holder of this environmental authority and accepted by the administering authority, must audit compliance with the conditions of this environmental authority during the construction and decommissioning phase of the pipeline and at a minimum frequency of every five (5) years following the completion of construction.
- (A10) Notwithstanding condition (A9) and prior to undertaking the third party audit, the scope and content of the third party audit can be negotiated with the administering authority.
- (A11) An audit report must be prepared and certified by the third party auditor presenting the findings of each audit carried out.
- (A12) Any recommendations arising from the audit report must be acted upon by:
- (a) investigating any non-compliance issues identified; and
 - (b) as soon as reasonably practicable, implementing measures or taking necessary action to ensure compliance with the requirements of this environmental authority.
- (A13) A written response must be attached to the audit report detailing the actions taken or to be taken on stated dates:
- (a) to ensure compliance with this environmental authority; and
 - (b) to prevent a recurrence of any non-compliance issues identified.

Infrastructure

- (A14) The following **infrastructure** must be clearly and permanently marked for the life of the petroleum activity(ies) with a unique reference name / number in such a way that it is clearly observable:
- (a) low hazard dams;
 - (b) sewage treatment plants;
 - (c) authorised discharge points to air;
 - (d) any chemical storage facility associated with the environmentally relevant activity of chemical storage; and
 - (e) compressor stations.

Low Hazard Dams

- (A15) Where a dam is assessed as low hazard, it must be
- a) constructed, operated and maintained in accordance with **accepted engineering standards** currently appropriate for the purpose for which the dam is intended to be used; and
 - b) designed with a floor and sides made of material that will contain the wetting front and any entrained contaminants within the bounds of the containment system during both its operational life and including any period of decommissioning and rehabilitation.
- (A16) In the event of early signs of loss of structural or hydrological integrity of a low hazard dam:
- a) immediate action to prevent or minimise any actual or potential environmental harm must be taken; and
 - b) any findings and actions taken must be reported in writing to the administering authority within 20 business days of that event.

Monitoring

- (A17) All monitoring required under this environmental authority must be undertaken by a suitably qualified person.
- (A18) The condition of all low hazard dams must be monitored for early signs of loss of structural or hydraulic integrity. 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.
- (A19) 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, unless NATA accredited tests are not available.

Documentation and Records Management

- (A20) All documents and monitoring results required by this environmental authority must be kept for a minimum of five (5) years

Abrasive Blasting and Surface Coating

- (A21) In carrying out abrasive blasting and surface coating activities, the Code of Environmental Compliance must be complied with for certain aspects of Mobile and Temporary Abrasive Blasting.
- (A22) Where abrasive blasting or surface coating activities are to be carried out over water, the activity must be carried out in accordance with the requirements and procedures outlined in the following administering authority 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 B – ENVIRONMENTAL NUISANCE

General

- (B1) 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.
- (B2) When the administering authority advises of a complaint alleging nuisance, the complaint must be investigated as soon as practicable. The investigation is to include monitoring of environmental nuisance at any sensitive place within a reasonable and practical timeframe as specified by the administering authority.
- (B3) The administering authority must be advised in writing of the results of the investigation (including an analysis and interpretation of the monitoring results) and actions proposed or undertaken to resolve the complaint within five (5) business days of completing the complaint investigation, unless a longer time is agreed to in writing by the administering authority.
- (B4) If the investigation or monitoring in accordance with condition (B3) indicates that emissions exceed the limits set in this environmental authority or are causing environmental nuisance, then:
- (a) the complaint must be addressed including the use of alternative dispute resolution services if required; and / or
 - (b) abatement or attenuation measures must be implemented so that the authorised petroleum activity(ies) does not result in further environmental nuisance.

Noise

- (B5) In the event of a complaint about noise from a petroleum activity(ies) (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) made to the administering authority, the emission of noise from the petroleum activity(ies) must not exceed the levels specified in Schedule D, Table 1 – Noise Limits at a Sensitive Place

Time Period	Metric	Short Term Noise Event	Medium Term Noise Event	Long Term Noise Event
7:00 am – 6:00 pm	LAeq,adj,15 min	45 dBA	43 dBA	40 dBA
6:00 pm – 10:00 pm	LAeq,adj,15 min	40 dBA	38 dBA	35 dBA
10:00 pm – 6:00 am	LAeq,adj,15 min	28 dBA	28 dBA	28 dBA
	Max LpA, 15 mins	55 dBA	55 dBA	55 dBA
6:00 am – 7:00 am	LAeq,adj,15 min	40 dBA	38 dBA	35 BA

Note: 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

- (B6) If noise levels generated by the petroleum activity(ies) exceed those specified in the table in item (B5) at a sensitive place, suitable measures must be taken to reduce the noise levels or mitigate the impact of the noise levels on the sensitive place.

- (B7) Noise must be measured in accordance with the prescribed standards in the *Environmental Protection Regulation 2008*
- (B8) A Blast Management Plan must be developed for each blasting activity in accordance with Australian Standard 2187.

Blasting and Vibration

- (B9) Noise from blasting operations must not exceed an airblast overpressure level of 120 dB (linear peak) at any time, when measured at or extrapolated to any sensitive receptor.
- (B10) Ground-borne vibration peak particle velocity caused by blasting operations must not exceed 10 mm/s at any time, when measured at or extrapolated to any sensitive receptor.

Blasting and Vibration Monitoring

- (B11) Monitoring and recording of the air blast overpressure and ground borne vibration of every blast must be undertaken.
- (B12) Blast and vibration monitoring must include but not necessarily be limited to:
- a) maximum instantaneous charge;
 - b) location of the blast within the site (including any bench level);
 - c) airblast overpressure level (dB Linear Peak);
 - d) peak particle velocity (mm / s);
 - e) location, date and time of recording;
 - f) measurement instrumentation and procedure;
 - g) meteorological conditions for blast monitoring (including temperature, relative humidity, temperature gradient, cloud cover, wind speed and direction); and
 - h) distances from the blast site to potentially noise-affected buildings or structures.



SCHEDULE C – WATER

Contaminant Release

- (C1) Contaminants must not be directly or indirectly released to any waters except as permitted under this environmental authority.
- (C2) Measures must be implemented and maintained to minimise overland flow entry onto significantly disturbed land.

Erosion and Sediment Control

- (C3) Sediment and erosion control measures must be implemented and maintained to prevent soil loss and deposition beyond significantly disturbed land.
- (C4) The measures required by conditions (C2) and (C3) must be in accordance, to the greatest practicable extent, with the International Erosion Control Association (IECA) *Best Practice Erosion and Sediment Control* (BPESC) document and/or the Australia Pipeline Industry Association (APIA) *Code of Environmental Practice: Onshore Pipelines* (2009)

Floodplains

- (C5) Where the petroleum activity(ies) is carried out on **floodplains**, the petroleum activity(ies) must be carried out in a way that 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.

SCHEDULE D – LAND

General

- (D1) Contaminants must not be directly or indirectly released to land except as permitted under condition (D5) to (D7) of this environmental authority.

Fauna Management

- (D2) Measures must be employed to prevent fauna entrapment during the construction of pipelines in pipe sections and pipeline trenches

Chemical Storage

- (D3) Chemicals and fuels on the relevant tenures must be contained within an on-site containment system that meets Australian standards, where such a standard is relevant.

Pipelines

- (D4) Pipeline Right of Way (RoW) construction corridors must:
- (a) not exceed 45 metres in width; and
 - (b) not include turn around and work areas associated with pipeline construction that exceed 50 metres in width; and
 - (c) pipeline trenches are left open for the minimum time practicable

Release of Contaminants to Land

- (D5) Hydrostatic test water may only be released to land in accordance with condition (D7)
- (D6) Treated sewage effluent may only:
- (a) be lawfully disposed off-site in accordance with condition (F2);
 - (b) be released to land by sub-surface or spray irrigation at designated, fenced contaminant release area(s) in accordance with conditions (D7) to condition (D12);
 - (c) be used for dust suppression, construction and operational purposes in accordance with condition (D7) and conditions (D17) to condition (D20).
- (D7) The release of contaminants to land authorised under this environmental authority must be carried out in a manner such that:
- (a) vegetation is not damaged;
 - (b) soil quality is not adversely impacted;
 - (c) there is no surface ponding or runoff to waters;
 - (d) there is no aerosols or odours;
 - (e) deep drainage below the root zone of any vegetation is minimised;
 - (f) the quality of shallow aquifers is not adversely affected.

Conditions (D8) to (D12) apply to temporary and permanent sewage treatment work operations with a design capacity of greater than 21 equivalent persons to 100 equivalent persons

- (D8) Treated sewage effluent may only be released to land by large droplet or by subsurface irrigation at designated, fenced and signed contaminant release areas.
- (D9) A buffer distance of 50 meters must be applied from the location of the effluent irrigation area to any watercourse, wetland or protected area and 100 meters from any potable water supply (bore or a catchment) or stock drinking water supply.
- (D10) When circumstances prevent the irrigation of treated sewage effluent to land, the contaminants must be directed to on-site storage or lawfully disposed of off-site.

- (D11) Treated sewage effluent must comply, at the sampling and in-situ measurement point(s), with each of the release limits specified in *Schedule D, Table 1 – Treated Sewage Effluent Standards for Release to Land* for each quality characteristic.
- (D12) All sewage effluent released to land must be monitored at the frequency and for the quality characteristics specified in *Schedule D, Table 1 – Treated Sewage Effluent Standards for Release to Land* for each quality characteristic.

Schedule D, Table 1 – Treated Sewage Effluent Standards for Release to Land

Quality Characteristic	Sampling and <i>in situ</i> measurement point location	Limit Type	Release Limit	Frequency
5-day Biochemical oxygen demand (inhibited)	Release pipe from sewage treatment plant	Maximum	20 mg/L	Quarterly
E. coli		80 th percentile based on at least 5 samples with not less than 30 minutes between samples	1000 cfu per 100 mL	
		Maximum	10000 cfu per 100 mL	
pH		Range	6.0-8.5	Monthly
Dissolved Oxygen		Minimum	2mg/L	
Electrical Conductivity		Monitor only		

Conditions (D14) through (D17) apply only to permanent sewage treatment plant operations with a design capacity of greater than 100 to 450 equivalent persons

- (D13) Prior to construction of a sewage treatment plants the minimum area of land and location to be utilised for irrigation of treated sewage effluent, excluding any necessary buffer zones, must be nominated.
- (D14) All nominated locations and minimum areas of land in condition (D13) must be determined using the Model for Effluent Disposal using Land Irrigation (MEDLI) program or recognised equivalent.
- (D15) A copy of results of the determinations required in condition (D14) must be submitted to the administering authority.

- (D16) If, within 20 business days following the submission of the results required by condition (D15) the administering authority provides comments on the submission, the holder of this environmental authority must:
- (a) have due regard to that comment in the finalisation of the amended results; and
 - (b) submit the finalised amended results within 40 business days after the administering authority provided comments; and
 - (c) implement the amended results.

Conditions (D17) through (D20) apply only to treated sewage effluent use for the purposes of dust suppression, construction and operational purposes.

- (D17) Treated sewage effluent produced from the authorised petroleum activity(ies) may only be used for dust suppression, construction and operational purposes provided that:
- (a) the treated sewage effluent has not been stored in a dam or tank prior to use and;
 - (b) the treated sewage effluent quality meets the release limits specified in *Schedule D, Table 2 –Treated Sewage Effluent Standards for Dust Suppression, Construction and Operational Purposes* for each of the water quality characteristics; and
 - (c) on local government controlled roads, written approval from the relevant Local Government.
- (D18) Treated sewage effluent must comply, at the sampling and in-situ measurement point(s), with each of the release limits specified in *Schedule D, Table 2 –Treated Sewage Effluent Standards for Dust Suppression, Construction and Operational Purposes* for each quality characteristic.
- (D19) All sewage effluent released to land must be monitored at the frequency and for the quality characteristics specified in *Schedule D, Table 2 –Treated Sewage Effluent Standards for Dust Suppression, Construction and Operational Purposes* for each quality characteristic.

Schedule D, Table 2 – Treated Sewage Effluent Standards for Dust Suppression, Construction and Operational Purposes

Quality Characteristic	Sampling and in-situ measurement point location	Limit type	Release Limit	Frequency
pH	e.g. treated sewage effluent storage	Range	6.0 to 8.5	Weekly ¹
5 – day Biochemical Oxygen Demand (BOD)		Median	20 mg/L	
E.Coli		Median	<10 cfu per 100 mL	
Electrical Conductivity		Maximum	1600 uS/cm	
Turbidity		95%ile (max)	2 (5) NTU	
Total Suspended Solids		Median	5 mg/L	

¹ Monitoring is to be conducted on a weekly basis until 12 months of monitoring demonstrates no exceedances of the release limits. Monthly monitoring can occur thereafter, excluding E.Coli.

- (D20) The quantity of treated sewage effluent used in accordance with condition (D17) must be determined by an appropriate method, for example, a flow meter.



SCHEDULE E – DISTURBANCE TO LAND

General

- (E1) When petroleum activity(ies) are being undertaken it must be ensured, that:
- a) the top layer of the soil profile is removed and stockpiled separately in accordance with the Soil Management Procedure Coal Seam Gas Fields Santos Ltd, dated 18 February 2011;
 - b) any soils removed during the significant disturbance are retained for use for rehabilitation purposes;
 - c) the clearing of mature trees has been preferentially avoided; and
 - d) any clearing of vegetation or placing of fill does not 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.

Ground-truthing Surveys

- (E2) Prior to conducting petroleum activities that involve **significant disturbance to land**, an assessment must be undertaken of the condition and type of vegetation and soils in such areas where the activity is proposed to take place.
- (E3) The assessment required by condition (E2) 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*.
- (E4) The assessment required by condition (E2) must also include, but not necessarily be limited to:
- (a) baseline soils quality data for soils to be significantly disturbed as provided for in the *Soil Management Procedure Coal Seam Gas Fields Santos Ltd*;
 - (b) identification of the vegetation communities present (including species composition and regional ecosystem type for native vegetation communities) within each area(s) to be disturbed;
 - (c) a map or series of maps of suitable scale displaying the distribution of vegetation communities; and
 - (d) data on the level of **ecosystem functioning** of each vegetation community.
- (E5) If a suitable **analogue site** for the area where the petroleum activity(ies) is proposed to take place is not able to be identified, then the assessment required by condition (E2) must also include, but not necessarily be limited to:
- (a) data representing each vegetation community present within each area(s) to be rehabilitated including:
 - (i) flora **species richness** and **species diversity**;
 - (ii) structural data including woody stem count densities for dominant species within each stratum;
 - (iii) percent **foliage cover** (accounting for seasonal variation and excluding **pests**);
 - (b) 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).

Mapping Validation

- (E6) If the assessment required by conditions (E2) to (E5) indicates that an environmentally sensitive area or wetland is incorrectly identified through state mapping, or is present and not identified by state mapping, proposed activities may proceed in accord with the conditions of the environmental authority and the field validated values.
- (E7) In the instance where a proposed activity is authorised (in E6) under the environmental authority based upon the field validated value(s), but not the State mapped value(s), the environmental authority holder must notify the administering authority five (5) business days prior to the activity commencing. The notification must be in writing, stipulate the precise location, and the nature of the proposed activity.
- (E8) The environmental authority holder must maintain for the life of the environmental authority all documentation survey information photographs, field data or any material associated with the field validation requirements in (E3) to demonstrate to the Administering Authority that surveys were conducted in a manner consistent with requirements contained in (E3).

Site Planning

- (E9) Prior to carrying out the petroleum activity(ies), it must be demonstrated that the location of activities have been selected to:
 - (a) in order of preference: avoid, minimise or mitigate any impacts on areas of vegetation or other areas of ecological value; and
 - (b) minimise disturbance to land that may otherwise result in land degradation.
- (E10) Prior to carrying out petroleum activities, the holder of this environmental authority must make all relevant staff, contractors or agents carrying out those petroleum activities, aware of the location of any Category A, B or C Environmentally Sensitive Areas, wetlands and presence of species classed as endangered, vulnerable, rare or near threatened under the *Nature Conservation Act 1992* and the requirements of this environmental authority.

Works in watercourses, wetlands, lakes and springs

- (E11) Unless otherwise authorised under this environmental authority, petroleum activity(ies) that require earthworks, vegetation clearing, placing fill and/or that will result in significant disturbance other than that associated with the construction and/or maintenance of linear infrastructure, is not permitted in or within:
 - a) 200 metres of any wetland, lake or spring; or
 - b) 100 metres of the high bank of any other watercourse.
- (E12) All reasonable alternative locations must be considered prior to the construction of any linear infrastructure that will result in significant disturbance in or on the **bed and banks** of a watercourse or within the areas specified in (E11)(b).

- (E13) The construction and/or maintenance of linear infrastructure that will result in significant disturbance in or on the **bed and banks** of a watercourse or within the areas specified in (E11)(a) and (b) must be conducted in accordance with the following order of preference:
- (a) conducting works in times when there is no water present;
 - (b) conducting works in times of no flow;
 - (c) conducting works in times of flow but in a way that does not impede low flow.
- (E14) The construction and/or maintenance of linear infrastructure that will result in significant disturbance in or on the **bed and banks** of a watercourse or within the areas specified in (E11)(b) must not release from the site any contaminants to any waters that exceed the water quality limits specified in *Schedule B, Table 1 – Release Limits to Waters*.

Schedule E, Table 1 – Release Limits to Waters

Water Quality Parameters	Units	Water Quality Limits
Turbidity	NTU	10% above background water turbidity measured within 20 meters downstream of the construction and/or maintenance activity.
Hydrocarbons	-	No visible sheen

- (E15) Background water turbidity must be measured within 20 metres upstream of the construction and/or maintenance activities.
- (E16) Monitoring is undertaken at a reasonable frequency to ensure compliance with condition (E14).
- (E17) Written notification detailing the location (GPS coordinates) of any significant disturbance to be undertaken in or on the **bed and banks** of a watercourse, or within the areas specified in condition (E11)(b) must be provided to the administering authority at least 10 business days prior to the commencement of the significant disturbance.

Vegetation Disturbance

- (E18) A maximum area of 6.74 ha of vegetation contained within remnant regional ecosystems may be cleared within the PPL 118 boundary for the authorised petroleum activities, as detailed in *Schedule E – Table 2: Maximum Remnant Regional Ecosystem Vegetation Clearing Authorised*.

Schedule E – Table 2: Maximum Remnant Regional Ecosystem Vegetation Clearing Authorised

Pipeline Section	RE	Description	VM Act Status	BD Status	Potentially Affected Area within an average 15 m vegetation clearing area (ha)
PPL118	11.3.17	<i>Eucalyptus populnea</i> woodland with <i>Acacia harpophylla</i> and/or <i>Casuarina cristata</i> on alluvial plains	OC	E	Regrowth only
	11.9.1	<i>Acacia harpophylla</i> - <i>Eucalyptus cambageana</i> open forest to woodland on fine-grained sedimentary rocks	E	E	Regrowth only
	11.9.5/11.9.5 a	<i>Acacia harpophylla</i> and/or <i>Casuarina cristata</i> open forest on fine-grained sedimentary rocks	E	E	0.212
	11.9.10	<i>Acacia harpophylla</i> and / or <i>Eucalyptus populnea</i> open forest on fine-grained sedimentary rocks	OC	E	Regrowth only
	Total Area of Endangered RE				0.212
	11.3.2 / 11.3.2b	<i>Eucalyptus populnea</i> woodland on alluvial plains, and Palustrine wetland (e.g. vegetated swamp). <i>Eucalyptus camaldulensis</i> (sometimes <i>E. populnea</i> and or <i>E. tereticomis</i>) woodland in drainage depressions. Ground layer of grasses or sedges. Occurs on seasonally inundated drainage depressions	OC	OC	1.591
	11.3.25	<i>Eucalyptus tereticomis</i> or <i>E. camaldulensis</i> woodland fringing drainage lines	LC	OC	0.896
	11.3.6	<i>Eucalyptus melanophloia</i> wood; and on alluvial plains	LC	OC	0.083
	11.3.4	<i>Eucalyptus tereticomis</i> and/or <i>Eucalyptus spp.</i> woodland on alluvial plains	OC	OC	Regrowth only
	Total Area of Of Concern RE				2.569
	11.10.9	<i>Callitris glaucophylla</i> woodland on coarse-grained sedimentary rocks	LC	NC	3.772
	11.10.11	<i>Eucalyptus populnea</i> , <i>E. melanophloia</i> +/- <i>Callitris glaucophylla</i> woodland on coarse-grained sedimentary rocks	LC	NC	0.185
	11.3.19	<i>Callitris glaucophylla</i> , <i>Corymbia spp.</i> and/or <i>Eucalyptus melanophloia</i> open forest to woodland on Cainozoic alluvial plains	LC	NC	0.001
	Total Area of Least Concern RE				3.957
	Total Area of Remnant Vegetation				6.738

(E19) The clearing of vegetation undertaken in constructing an access track must not exceed 25 metres in width.

SCHEDULE F – WASTE

General

- (F1) Measures must be implemented so that waste is managed in accordance with the waste and resource management hierarchy and the waste and resource management principles.
- (F2) If waste disposal is required, then waste, including waste fluids, must be transported off-site for lawful reuse, remediation, recycling or disposal, unless otherwise authorised by this environmental authority.

SCHEDULE G – COMPRESSOR STATIONS

Wallumbilla Compressor Station – Compliance with Environmental Management Plan

- (G1) The relevant control strategies and standards detailed in the “*Environmental Management Plan Wallumbilla Compressor Station*”, dated 22 September 2008, must be complied with to manage environmental impacts caused by the undertaking of petroleum activities authorised under this authority associated with the Wallumbilla Compressor Station.

Fuel Burning at Wallumbilla Compressor Station

- (G2) The release of contaminants to the atmosphere from a point source must only occur from those release points identified in Schedule G – Table 1 and must be directed vertically upwards without any impedance or hindrance.
- (G3) Contaminants must be released to the atmosphere from a release point at a height and flow rate not less than the corresponding height and velocity stated for that release point stated in Schedule G, Table 1 – Contaminant release points at Wallumbilla Compressor Station.
- (G4) Contaminants must not be released to the atmosphere from a release point at a mass emission rate/ concentration, as measured at a monitoring point, in excess of that stated in Schedule H – Table 1 and monitored not less frequently than Schedule H – Table 2.

Schedule G – Table 1- Contaminant Release Points at Wallumbilla Compressor Station

Release point number	Minimum release height (metres)	Minimum velocity (m/sec)	Contaminant release	Maximum release limit ¹
C1 (Compressor 1 Engine Stack)	5.7	15.0	NO _x , CO, CO ₂ , VOC	450 mg/Nm ³ @3% O ₂ (dry) NO _x and 0.5 grams/second NO _x
C2 (Compressor 2 Engine Stack)	5.7	15.0	NO _x , CO, CO ₂ , VOC	450 mg/Nm ³ @3% O ₂ (dry) NO _x and 0.5 grams/second NO _x
C3 (Compressor 3 Engine Stack)	5.7	15.0	NO _x , CO, CO ₂ , VOC	450 mg/Nm ³ @3% O ₂ (dry) NO _x and 0.5 grams/second NO _x
A1 (Auxiliary Generator Stack)	2.5	5.0	NO _x , CO, CO ₂ , VOC	No limit proposed
A2 (Start-up Diesel Generator Stack)	2.5	5.0	NO _x , CO, CO ₂ , VOC	No limit proposed
A3 (Fuel Gas Heater Stack)	2.5	5.0	NO _x , CO, CO ₂ , VOC	No limit proposed
V1 (Plant Emergency Vent)	5	No Limit	Coal Seam Gas	No limit proposed

Note 1: The above NO_x limits are applicable during all times except start-up, shut down and calibration of emission monitoring devices. The maximum start-up allowed is 30 minutes.

- (G5) The only type of fuel to be burnt in the compressors is natural methane.
- (G6) Air intake silencers and exhaust silencers must be fitted to all compressors within the Wallumbilla Compressor Station.

- (G7) The Start-up Diesel Generator (Release Point A2) must operate for no more than 30 days per year and for no more than 72 consecutive hours in any 7 day period.
- (G8) Notwithstanding Condition (G7), the Start-up Diesel Generator may operate continuously for a further 7 day period if required for maintenance purposes, following written notification to the administering authority.
- (G9) Any operation of the Start-up Diesel Generator that will exceed the time periods specified in Conditions (G7) and (G8) (i.e. 10 continuous days of operation) must be approved by the administering authority prior to the extended operation.

Monitoring of Contaminant Releases to the Atmosphere

- (G10) The holder of this authority must conduct and keep records of a monitoring program of contaminant release to the atmosphere at the release points, frequency, and the parameters specified in Schedule G – Table 2 and which complies with the following:
 - a) Monitoring provision for the release points listed in Schedule H – Table 2 must comply with the Australian Standard AS4323.1 – 1995 'Stationary source emissions Method 1: Selection of sampling provisions'.
 - b) The following test must be performed for each required determination specified in Table 2:
 - i. gas velocity and volume flow rate;
 - ii. temperature and oxygen content;
 - iii. water vapour concentration.
 - c) Where practicable samples taken must be representative of the contaminants discharged when emissions are expected to be at maximum rates.
 - d) During the sampling period the following additional information must be gathered:
 - i. number of operating units;
 - ii. reference to actual test methods and accuracies.

Schedule G – Table 2- Wallumbilla Compressor Station Monitoring Requirements

Determination Required	Release Point Numbers	Frequency
Mass emission rate and concentration of oxides of nitrogen (NOx) in the flue gas at the specified oxygen reference level.	Compressor Engine 1, 2 and 3 Stacks	During commissioning of the plant, twice a year for the first two years of operation and then annually thereafter

- (G11) All release points referred to in Schedule G - Table 1 – Contaminant Release Points at Wallumbilla Compressor Station, must be conspicuously marked with the corresponding release point number and be located in accordance with Appendix 1 – Site Layout.
- (G12) The method of measures of point source contaminant releases to air must comply with the latest edition of the *Queensland Air Quality Sampling Manual* and/or Australian Standard 4323 as amended from time to time.
- (G13) The release of contaminants to the atmosphere from a point source must be directed vertically upwards without any impedance or hindrance and must only occur from those release points identified in Schedule G, Table 3- Contaminant Release at Pipeline Compressor Station (PCS).
- (G14) Contaminants must be released to the atmosphere from a release point at a height and a velocity not less than the corresponding height and velocity stated for that release point in Schedule G, Table 3.
- (G15) Contaminants must not be released to the atmosphere from a release point at a mass emission rate/concentration, as measured at a monitoring point, in excess of that stated in Schedule G, Table 3 and monitored not less frequently than Schedule G, Table 3.

Schedule G, Table 3– Contaminant Release at Pipeline Compressor Station (PCS)

Release Point Number	Minimum Release Height (m)	Minimum Velocity (m/sec)	Contaminant Release	*Maximum Release Limit	Frequency
Compressor 1 Engine Stack (K059)	9.3	17	Oxides of Nitrogen	450 mg/Nm ³ @ 5% O ₂ (dry) NO _x , 0°C (237°K), 101.3 kPa oxygen reference level and 0.5 g/sec NO _x	All stacks must be monitored during commissioning (See Note 1) of the facility and once per year thereafter.
Compressor 2 Engine Stack (K060)	9.3	17	Oxides of Nitrogen	450 mg/Nm ³ @ 5% O ₂ (dry) NO _x , 0°C (237°K), 101.3 kPa oxygen reference level and 0.5 g/sec NO _x	All stacks must be monitored during commissioning (See Note 1) of the facility and once per year thereafter.
Unit 1 Auxiliary Generator Stack (CSG fuelled)	3	20	NO _x , CO, CO ₂ , VOC	Monitor Only	All stacks must be monitored during commissioning (See Note 1) of the facility and once per year thereafter.
Unit 2 Auxiliary Generator Stack (CSG fuelled)	3	20	NO _x , CO, CO ₂ , VOC	Monitor Only	All stacks must be monitored during commissioning (See Note 1) of the facility and once per year thereafter.
Auxiliary Generator Stack Backup Unit (Diesel fuelled)	3	20	NO _x , Co, Co ₂ , VOC, SO _x , PM ₁₀ / PM _{2.5}	Monitor Only	All stacks must be monitored during commissioning (See Note 1) of the facility and once per year thereafter.
V2 (Plant Emergency Vent)	5	No Limit	Coal Seam Gas	No limit proposed	No monitoring required.

* Note: The above NO_x release limits are applicable during all timings except start-up, shut-down and calibration of emission monitoring devices. The start-up duration is allowed up to 30 minutes

SCHEDULE H – REHABILITATION

Decommissioning of buried pipelines

- (H1) All buried pipelines must be decommissioned in accordance with the requirements of **Australian Standard 2885**, as amended from time to time.

Rehabilitation Plan

- (H2) A Rehabilitation Plan must be developed prior to the carrying out of the petroleum activity(ies) and include strategies for the determination of final land use(s) and rehabilitation goals and details of how rehabilitation objectives will be achieved. The Rehabilitation Plan must include:
- (a) a rehabilitation hierarchy for:
 - (i) reinstating native ecosystem(s) as similar as possible to the original ecosystem(s) present prior to disturbance as the preferred option; then
 - (ii) establishing an alternative outcome with a higher environmental value than the present prior to disturbance from petroleum activities where it can be demonstrated that (H2)(a)(i) is not possible; then
 - (iii) reinstating the previous land use (e.g. grazing or cropping); and
 - (b) methods to achieve rehabilitation goals including, but not necessarily being limited to:
 - (i) establishing final land use(s) in consultation with affected landholder(s) and the administering authority;
 - (ii) identifying suitable analogue² sites to measure rehabilitation success that may either be the pre-disturbed area or another area that has equivalent values and characteristics as the intended final land use(s); and
 - (iii) for sites that are being reinstated to a land use other than a native ecosystem, the Rehabilitation Plan must identify any additional and relevant indicators to be measured at both the analogue and rehabilitation site(s) so as to assess progressive and final rehabilitation success for that land use;
 - (iv) for sites that are being reinstated to native ecosystems and the analogue site is the pre-disturbed site, the Rehabilitation Plan must include indicators that, as a minimum include those in condition (E4)(a) – (E4)(d) ground truthing surveys and will be able to measure success against the progressive and final rehabilitation criteria in this environmental authority;
 - (v) identification of any land use constraints which have resulted from the petroleum activity(ies);
 - (vi) residual pollution risks with strategies for managing and mitigating them;
 - (vii) landscape planning and landform design principles to achieve stable landforms including slope designs, erosion controls and drainage lines;
 - (viii) integrating rehabilitated areas so they are compatible with the surrounding landscape, including linking rehabilitated areas of native vegetation with undisturbed native vegetation to provide larger areas and wildlife corridors where feasible;
 - (ix) ensuring that significantly disturbed areas are rehabilitated progressively and that the progressive rehabilitation criteria are routinely measured;
 - (x) site preparation such as re-profiling, re-instating surface drainage systems;

² The latest version of the Queensland Government's *Biocondition, a Condition Assessment Framework for Terrestrial Biodiversity in Queensland, Assessment Manual* and accompanying document *Methodology for the Establishment and Survey of Reference Sites for Biocondition* may be used to establish suitable analogue sites for like native vegetation communities.

- (xi) top soil management such as top soil handling and stockpiling to preserve soil fertility and biota, resspreading techniques, planned thickness, ripping, top soil treatments / amendments and mulching in consideration of analogue data;
 - (xii) flora to be established, including required species diversity, abundance and composition and projective cover in consideration of analogue data;
 - (xiii) plant propagation and / or supply methods including using seeds / spores of local provenance where feasible;
 - (xiv) establishment methods to maximise rehabilitation success such as seed treatments, seed spreading, timing of seeding to suit best local climatic conditions, hydroseeding, transplanting;
 - (xv) weed control;
 - (xvi) sourcing habitat structures for native fauna and installation methods in consideration of matching analogue data;
 - (xvii) on-going maintenance program for rehabilitated areas; and
 - (xviii) rehabilitation monitoring program as required by rehabilitation monitoring conditions of this environmental authority; and
- (c) timeframes for commencing rehabilitation of significantly disturbed areas that are not required for the on-going conduct of the petroleum activity(ies), not greater than three (3) months for the rehabilitation of buried pipelines and not greater than nine (9) months for any other significantly disturbed area.

Progressive Rehabilitation of Buried Pipelines

- (H3) Pipeline trenches must be backfilled and topsoils reinstated as soon as practicable after pipe laying.
- (H4) Backfilled and reinstated pipeline trenches and the right of way must as soon as practicable, but no longer than three (3) months:
- (a) be a stable landform;
 - (b) be re-profiled to a level consistent with surrounding soils;
 - (c) be re-profiled to original contours and established drainage lines; and
 - (d) be vegetated with groundcover which is not a declared pest species, and which is established and self-sustaining.

Progressive Rehabilitation of Significantly Disturbed Land

- (H5) 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 required by the environmental authority
- (H6) 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) establish vegetation of floristic species composition found in analogue sites and which are not weed species;
 - (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

- (H7) 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 the analogue site and which are not weed species;
 - (v) there is no ongoing contamination to waters;
 - (vi) there is no ongoing contamination to groundwater from dams or monowells (demonstrated via groundwater monitoring and leak detection monitoring systems); and
 - (vii) 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 each of the following rehabilitation parameters are maintained for at least three (3) years:
 - (a) the rehabilitated site shows distinct and progressive re-establishment of the various strata which characterise the vegetation community in the analogue site;
 - (b) all dominant species within each strata are re-established at densities equivalent to that of the analogue site;
 - (c) notwithstanding (H8)(b)(i)(a) and (H8)(b)(ii)(b), a minimum of 70% **species richness** and **species diversity** is observed when compared to the relevant analogue site;

- (d) a minimum of 50% **foliage cover** is observed when compared to the relevant analogue site;
- (e) 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
- (f) 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

- (H8) A Rehabilitation Monitoring Program must be developed by July 2013.
- (H9) 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.

Monitoring of Progressive Rehabilitation

- (H10) Regular maintenance and at least yearly monitoring of rehabilitated areas must take place to measure compliance with condition (H5) and (H7).

Monitoring of Final Rehabilitation Success

- (H11) 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.

SCHEDULE I – COMMUNITY ISSUES

- (I1) A record of all valid complaints and actions taken in response to the valid complaint must be kept.
- (I2) The following details for all valid complaints received must be recorded:
 - (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 J – NOTIFICATION

- (J1) The Department of Environment and Heritage Protection Pollution Hotline must be notified as soon as reasonably practicable, but within 48 hours after becoming aware of:
- (a) any unauthorised significance disturbance to land; or
 - (b) any unauthorised release of contaminants, other than those circumstances in condition (J2); or
 - (c) a potential or actual loss of structural or hydraulic integrity of a dam; or
 - (d) when the level of the contents of any regulated dam reaches the mandatory reporting level; or
 - (e) when a regulated dam will not have available storage to meet the design storage allowance on the 1 November of any year;
 - (f) 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); or
 - (g) any detection of restricted stimulation fluids from stimulation fluid monitoring; or
 - (h) any analyses result from baseline bore, well or stimulation impact monitoring that exceeds a water quality objective for the protection of an environmental value of that water resource; or
 - (i) any analyses result from groundwater monitoring that exceeds trigger action investigation levels, if provided in this environmental authority.
- (J2) The Department of Environment and Heritage Protection Pollution Hotline must be notified as soon as reasonably practicable, but within 48 hours after becoming aware of the following releases (or their mixtures):
- (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; or
 - (vi) 10 000 L of sewage effluent.
- (J3) The notification of emergencies or incidents as required by conditions (J1) and (J2) must be submitted to the administering authority using an *Incident Notice (chapter 5a activities (EM706))*.
- (J4) Unless a longer time is agreed to in writing by the administering authority, a written report must be provided to the administering authority within 10 business days of notification under conditions (J1) and (J2) including the following (where relevant to the emergency or incident):
- (a) the root cause of the emergency or incident;
 - (b) the confirmed quantities and types of any contaminants involved in the incident;
 - (c) results and interpretation of any analysis of samples taken at the time of the emergency or incident (including the analysis results of any impact monitoring);
 - (d) 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;
 - (e) the success or otherwise of actions taken at the time of the incident to prevent or minimise environmental harm;
 - (f) results and current status of landholder consultation, including commitment to resolve any outstanding issues / concerns; and

- (g) actions and / or procedural changes to prevent a recurrence of the emergency or incident.

SCHEDULE K – PETROLEUM SURVEY ACTIVITIES

Conditions (K1) to (K4) apply to petroleum activities authorised by Petroleum Survey Licence (PSL 83).

Authorised Activities

- (K1) In the carrying out of the petroleum activity(ies), the number and maximum size for each of the specified petroleum activities listed in Schedule K, Table 1 – Authorised Petroleum Activities.

Schedule K, Table 1 – Authorised Petroleum Activities

Activity	Maximum Size	Quantity
Low Impact Petroleum Activities	No maximum size	No maximum quantity
Boreholes	100 mm diameter by 2 m depth	40
Boreholes	300 mm diameter by 16 m depth	16

Environmentally Sensitive Areas

- (K2) Notwithstanding conditions (E8), petroleum activities authorised by Petroleum Survey Licence (PSL 83) must be carried out in accordance with Schedule K, Table 2 – Petroleum Activities in Environmentally Sensitive Areas

Schedule K, Table 2 – Petroleum Activities in Environmentally Sensitive Areas

ESA Category	Within the ESA	Primary protection zone of the ESA	Secondary protection zone of the ESA
Category A ESAs	No petroleum activities permitted.	Only low impact petroleum activities permitted	Only limited petroleum activities permitted
Category B or Category C ESAs	Only limited petroleum activities permitted. Subject to conditions (K3) and (K4) inclusive	Only limited petroleum activities permitted. Subject to conditions (K3) and (K4) inclusive	N/A

(K3) Prior to carrying out limited petroleum activities undertaken within environmentally sensitive areas in accordance with Schedule K, Table 2 – Petroleum Activities in *Environmentally Sensitive Areas*, it must demonstrated, in the following order of preference that:

1. no reasonable or practicable alternative exists for carrying out the limited petroleum activities within the **environmentally sensitive area**;
2. the **limited petroleum activities** are preferentially located in pre-existing areas of clearing or significant disturbance;
3. vegetation clearing for the **limited petroleum activities** must not exceed any of the following areas:
 - (a) 6 metres in width for access tracks not associated with a water, gas, power or communications line; or
 - (b) for linear infrastructure, including provision of an access track:
 - (i) 12 metres width for a single water, gas, power or communications line; or
 - (ii) 7 metres width for any additional water or gas line.

(K4) If limited petroleum activity(ies) are located within a primary protection zone or secondary protection zone of an environmentally sensitive area, that the activity(ies) must not negatively affect the adjacent environmentally sensitive area.

SCHEDULE L – DEFINITIONS

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

administering authority means:

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

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 such as that ground truthing assessment which may be required under the environmental authority.

Australian Standard 2885 means Australian Standard 2885.0:2008 *Pipelines – Gas and Liquid Petroleum General Requirements*, Australian Standard 2885.1:2007 *Pipelines – Gas and Liquid Petroleum Design and Construction* and Australian Standard 2885.3:2001 *Pipelines – Gas and Liquid Petroleum Operation and Maintenance*, or any updated versions that becomes available from time to time.

Australian Standard 4323 means Australian Standard 4323.1:1995 *Stationary source emissions method 1: Selection of sampling positions*.

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.

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.

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:

- 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 called 'RE description database' containing Regional Ecosystem numbers and descriptions.

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:

- exactly what is being certified and the precise nature of that certification.
- the relevant legislative, regulatory and technical criteria on which the certification has been based;
- 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
- the reasoning on which the certification has been based using the relevant data and facts, and the relevant criteria.

certify or certification or certified in relation to any matter other than a design plan, 'as constructed' drawings or an annual report regarding dams in this environmental authority means a Statutory Declaration by a suitably qualified person accompanying the written document stating that:

- a) all relevant material has been considered in the written document; and
- b) that the content of the written document is accurate and true; and
- c) that the written document meets the requirements of the relevant conditions of the environmental authority.

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.

Contaminated Land – means land contaminated by a hazardous contaminant.

dam means a land-based structure or a void that is designed to contain, divert or control flowable substances, and includes any substances that are thereby contained, diverted or controlled by that land-based structure or void and associated works. A dam does not mean a fabricated or manufactured tank or container, designed and constructed to an Australian Standard that deals with strength and structural integrity of that tank or container.

decommissioning in relation to pipelines means the action undertaken to prepare the pipeline and peripheral facilities for pending suspension or abandonment.

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).

equivalent person or EP 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.

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

- is covered from time to time by floodwater overflowing from the watercourse; and
- does not, other than in an upper valley reach, confine floodwater to generally follow the path of the watercourse; and
- 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 any conditions potentially affecting that substance. Constituents of a flowable substance can include water, other liquids fluids or solids, or a mixture that includes water and any other liquids 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.

groundwater means subsurface water, generally saturating the soil or rock in which it occurs.

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.

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_{A 90, adj, 15 mins} means the A-weighted sound pressure level, adjusted for tonal character, that is equal to or exceeded for 90% of any 15 minutes sample period equal, using Fast response

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 any low impact petroleum activity, and:

- single well sites (includes observation, pilot, injection and production wells) up to 1 ha and associated infrastructure (water pumps and generators, sumps, flare pits or dams) located on the well site or up to 1.25 ha if the well pad includes the use of a tank (minimum 1ML) for above ground fluid storage,
- multi-well sites up to an additional (in addition to single well site above) 0.25 ha per additional well and associated infrastructure (water pumps and generators, sumps, flare pits, dams or tanks) located on the well site to a maximum of 3 ha,
- construction of new access tracks that are required as part of the construction or servicing a petroleum activity that can be lawfully carried out within an ESA or its protection zone
- upgrading or maintenance of existing roads or tracks,
- power and communication lines,
- gas gathering lines from a well site to the initial compression facility,
- water gathering lines from a well site to the initial water storage or dam,
- camps within well site that may involve sewage treatment works that are a no release works.

linear infrastructure means powerlines, communication, pipelines, 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*, published by the Department of Environment and Resource Management.

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 petroleum activities which do not result in the clearing of native vegetation, earthworks or excavation work that cause either, a significant disruption to the soil profile or permanent damage to vegetation that cannot be easily rehabilitated immediately after the activity is completed. Examples of such activities include but are not necessarily limited to:

- chipholes
- coreholes
- geophysical surveys
- seismic surveys
- soil surveys
- topographic surveys
- cadastral surveys
- ecological surveys
- installation of environmental monitoring equipment (including surface water)

Max $L_{pZ, 15 \text{ min}}$ means the maximum value of the Z-weighted sound pressure level measured over 15 minutes.

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

Meter means a device for measuring, or giving an output signal proportional to, quantities of water passed and/or the rate of flow in a pipe.

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.

Noise means a sound or vibration of any frequency, whether transmitted through air or any other physical medium.

Petroleum authority is—

- a) a 1923 Act petroleum tenure granted under the *Petroleum Act 1923*; or
- b) an authority to prospect, petroleum lease, data acquisition authority, water monitoring authority, petroleum facility licence, survey licence or pipeline licence 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*.

Permanent sewage treatment plant operations means sewage treatment plant operations with a design capacity of greater than 21 but less than 450 equivalent persons carried out at one location for of a period of greater than six months in a calendar year.

Primary protection zone means an area within a 200 metre buffer from the boundary of any Category A, B or C Environmentally Sensitive Area.

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*, published by the Department of Environment and Resource Management, as amended from time to time.

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

Reinstatement, reinstate, reinstated means the process of bulk earth works and structural replacement of pre-existing conditions of a site (i.e. soil surface topography, watercourses, culverts fences and gates and other landscape/features) and is detailed in section 4.8 of the Australian Pipeline Industry Association (APIA) Code of Environmental Practice Onshore

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

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

Secondary protection zone in relation to a Category A Environmentally Sensitive Area means an area within an 100 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 an area within a 100 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 to 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.

Sewage is the effluent discharged from a sanitary appliance (i.e. sewage treatment works).

Short term noise event is a noise exposure, when perceived at a sensitive place, 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 relevant petroleum activity(ies) to which the environmental authority relates.

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

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

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 regulated structures means a person who is a Registered Professional Engineer of Queensland (RPEQ) under the provisions of the Professional Engineers Act 2002, and has demonstrated competency and relevant experience:

- for regulated dams, an RPEQ who is a civil engineer with the required qualifications in dam safety and dam design.
- for regulated levees, an RPEQ who is a civil engineer with the required qualifications in the design of flood protection embankments.

It is permissible that a suitably qualified and experienced person obtain subsidiary certification from an RPEQ who has demonstrated competence and relevant experience in either geomechanics, hydraulic design or engineering hydrology.

temporary sewage treatment plant operations means sewage treatment plant operations with a design capacity of equal to or less than 100 equivalent persons carried out at one location for a period of no greater than six months in a calendar year.

third party auditor means a suitably qualified person who is either a certified third party auditor or an internal auditor employed and the person is independent of the day to day management and operation of the petroleum activity(ies) covered by this environmental authority

top soil 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 300 mm 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).

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

watercourse has the meaning provided in section 5 of the *Water Act 2000* and includes the bed and banks and any other element of a river, creek or stream confining or containing 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.

80th percentile in relation to release limits means that not more than one (1) of the measured values is to exceed the stated release limit for any five (5) consecutive samples where:

- the consecutive samples are taken over a five (5) **month** period; and
- the consecutive samples are taken at approximately equal periods

END OF CONDITIONS

