

Department of Environment and Heritage Protection

Permit¹

Environmental Protection Act 1994

Environmental Authority

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

Permit¹ number: EPPG03516215

Environmental authority takes effect: 15 September 2016

The anniversary date of this environmental authority is **3 March**.

An annual return and the payment of the annual fee will be due each year on this day.

The environmental authority is subject to the attached schedules of conditions.

Environmental authority holder(s)	Registered address
Bridgeport (Surat Basin) Pty Ltd ACN: 608 515 939	Level 7, 111 Pacific Highway NORTH SYDNEY NSW 2060

Environmentally Relevant Activity(ies)	Relevant Tenure
Resource activity that is a petroleum activity	Petroleum Lease (PL): PL1



Signature

15 / 09 / 2016

Date

William Inonda

Delegate of the administering authority
Environmental Protection Act 1994

Enquiries:

Petroleum and Gas
Department of Environment and Heritage
Protection
Level 7, 400 George Street
BRISBANE QLD 4000
GPO Box 2454, BRISBANE QLD 4001
Phone: (07) 3330 5715
Fax: (07) 3330 5634

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



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 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 environmental 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 and notifiable activities

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) 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 20 business days after becoming so aware, give written notice to the chief executive.

Responsibilities under the *Environmental Protection Act 1994*

Separate to the requirements of standard conditions, the holder of the environmental authority must also meet their obligations under the *Environmental Protection Act 1994*, and the regulations made under that Act. For example, the holder must be aware of the following provisions of the *Environmental Protection Act 1994*.

General environmental duty

Section 319 of the *Environmental Protection Act 1994* states that we all have a general environmental duty. This means that we are all responsible for the actions we take that affect the environment. We must not carry out any activity that causes or is likely to cause environmental harm unless we take all reasonable and practicable measures to prevent or minimise the harm. To decide what meets your general environmental duty, you need to think about these issues:

- the nature of the harm or potential harm
- the sensitivity of the receiving environment
- the current state of technical knowledge for the activity
- the likelihood of the successful application of the different measures to prevent or minimise environmental harm that might be taken
- the financial implications of the different measures as they would relate to the type of activity.

It is not an offence not to comply with the general environmental duty, however maintaining your general environmental duty is a defence against the following acts:

- (a) an act that causes serious or material environmental harm or an environmental nuisance
- (b) an act that contravenes a noise standard
- (c) a deposit of a contaminant, or release of stormwater run-off, mentioned in section 440ZG.

More information is available on the Department of Environment and Heritage Protection website www.ehp.qld.gov.au.

Duty to notify

Section 320 of the *Environmental Protection Act 1994* explains the duty to notify. The duty to notify applies to all persons and requires a person or company to give notice where serious or material environmental harm is

caused or threatened. Notice must be given of the event, its nature and the circumstances in which the event happened. Notification can be verbal, written or by public notice depending on who is notifying and being notified.

The duty to notify arises where:

- a person carries out activities or becomes aware of an act of another person arising from or connected to those activities which causes or threatens serious or material environmental harm
- while carrying out activities a person becomes aware of the happening of one or both of the following events:
 - the activity negatively affects (or is reasonably likely to negatively affect) the water quality of an aquifer
 - the activity has caused the unauthorised connection of 2 or more aquifers.

For more information on the duty to notify requirements refer to the guideline *Duty to notify of environmental harm (EM467)*.

Some Relevant Offences under the *Environmental Protection Act 1994*

Non-compliance with a condition of an environmental authority (section 430)

Section 430 of the *Environmental Protection Act 1994* requires that a person who is the holder of, or is acting under an environmental authority must not wilfully contravene, or contravene a condition of the environmental authority.

Environmental authority holder responsible for ensuring conditions complied with (section 431)

Section 431 of the *Environmental Protection Act 1994* requires that the holder of an environmental authority must ensure everyone acting under the environmental authority complies with the conditions of the environmental authority. If another person acting under the environmental authority commits an offence against section 430, the holder also commits an offence, namely, the offence of failing to ensure the other person complies with the conditions.

Causing serious or material environmental harm (sections 437–39)

Material environmental harm is environmental harm that is not trivial or negligible in nature. It may be great in extent or context or it may cause actual or potential loss or damage to property. The difference between material and serious harm relates to the costs of damages or the costs required to either prevent or minimise the harm or to rehabilitate the environment. Serious environmental harm may have irreversible or widespread effects or it may be caused in an area of high conservation significance. Serious or material environmental harm excludes environmental nuisance.

Causing environmental nuisance (section 440)

Environmental nuisance is unreasonable interference with an environmental value caused by aerosols, fumes, light, noise, odour, particles or smoke. It may also include an unhealthy, offensive or unsightly condition because of contamination.

Depositing a prescribed water contaminant in waters (section 440ZG)

Prescribed contaminants include a wide variety of contaminants listed in Schedule 9 of the *Environmental Protection Act 1994*.

It is your responsibility to ensure that prescribed contaminants are not left in a place where they may or do enter a waterway, the ocean or a stormwater drain. This includes making sure that stormwater falling on or running across your site does not leave the site contaminated. Where stormwater contamination occurs you must

ensure that it is treated to remove contaminants. You should also consider where and how you store material used in your processes onsite to reduce the chance of water contamination.

Placing a contaminant where environmental harm or nuisance may be caused (section 443)

A person must not cause or allow a contaminant to be placed in a position where it could reasonably be expected to cause serious or material environmental harm or environmental nuisance.

Some Relevant Offences under the *Waste Reduction and Recycling Act 2011***Littering (section 103)**

Litter is any domestic or commercial waste and any material a person might reasonably believe is refuse, debris or rubbish. Litter can be almost any material that is disposed of incorrectly. Litter includes cigarette butts and drink bottles dropped on the ground, fast food wrappers thrown out of the car window, poorly secured material from a trailer or grass clippings swept into the gutter. However, litter does not include any gas, dust, smoke or material emitted or produced during, or because of, the normal operations of a building, manufacturing, mining or primary industry.

Illegal dumping of waste (section 104)

Illegal dumping is the dumping of large volumes of litter (200 L or more) at a place. Illegal dumping can also include abandoned vehicles.

Responsibilities under Other Legislation

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

- *Aboriginal Cultural Heritage Act 2003*
- contaminated land provisions of the *Environmental Protection Act 1994*
- *Fisheries Act 1994*
- *Forestry Act 1959*
- *Nature Conservation Act 1992*
- *Petroleum and Gas (Production and Safety) Act 2004 / Petroleum Act 1923*
- *Queensland Heritage Act 1992*
- *Sustainable Planning Act 2009*
- *Water Supply (Safety and Reliability) Act 2008*
- *Water Act 2000*

Applicants are advised to check with all relevant statutory authorities and comply with all relevant legislation. An environmental authority for petroleum activities is not an authority to impact on water levels or pressure heads in groundwater aquifers in or surrounding formations. There are obligations to minimise or mitigate any such impact under other Queensland Government and Commonwealth Government legislation.

The environmental authority consists of the following schedules:

SCHEDULE A – GENERAL	6
SCHEDULE B – AIR	10
SCHEDULE C – WATER	11
SCHEDULE D – NOISE	14
SCHEDULE E – WASTE	15
SCHEDULE F – LAND	17
SCHEDULE G – BIODIVERSITY	18
SCHEDULE H – REHABILITATION.....	19
SCHEDULE I – DAMS.....	21
SCHEDULE J – WELL CONSTRUCTION AND MAINTENANCE	23
SCHEDULE K - DEFINITIONS	27

SCHEDULE A – GENERAL

Authorised Resource Activities

- (A1) This environmental authority authorises the carrying out of the following resource activities:
- (a) the petroleum activities and specified relevant activities listed in *Schedule A, Table 1 - Authorised Petroleum Activities* to the extent they are carried out in accordance with the activity's corresponding scale or intensity or both (where applicable); and
 - (b) incidental activities that are not otherwise specified relevant activities.
- (A2) The **authorised resource activities** are authorised subject to the conditions of this environmental authority.
- (A3) This environmental authority does not authorise a relevant act to occur in carrying out an authorised resource activity unless a condition expressly authorises that relevant act to occur. Where there is no condition, the lack of a condition must not be construed as authorising the relevant act.

Schedule A, Table 1 – Authorised Petroleum Activities

Authorised Petroleum Activity	Scale		Intensity
	Maximum size	Location	
Petroleum activities			
Petroleum exploration and production	15.98 ha	PL1	27 development wells
Specified relevant activities			
Stimulation activities	N/A	PL1	N/A
Chemical storage – storing <500m ³ of chemicals of class C1 or C2 combustible liquids under AS 1940 or DG Class 3	0.8 ha	PL1	Within 1 tank farm
Low consequence dams	175 ha (total)	PL1	Pond 1 – 328.1ML Pond 2 – 308.1ML Pond 3 – 345.1ML Pond 4 – 348.8ML

Monitoring Standards

- (A4) All monitoring must be undertaken by a **suitably qualified person**.
- (A5) If requested by the **administering authority** in relation to investigating a complaint, monitoring must be commenced within 10 business days.
- (A6) All laboratory analyses and tests must be undertaken by a laboratory that has **NATA accreditation** for such analyses and tests.

- (A7) Notwithstanding condition (A6), where there are no NATA accredited laboratories for a specific analyte or substance, then duplicate samples must be sent to at least two separate laboratories for independent testing or evaluation.
- (A8) Monitoring and sampling must be carried out in accordance with the requirements of the following **documents** (as relevant to the sampling being undertaken), as amended from time to time:
- (a) for **waters** and aquatic environments, the Queensland Government's Monitoring and Sampling Manual 2009 – *Environmental Protection (Water) Policy 2009*
 - (b) for groundwater, Groundwater Sampling and Analysis – A Field Guide (2009:27 GeoCat #6890.1)
 - (c) for noise, the *Environmental Protection Regulation 2008*
 - (d) for air, the Queensland Air Quality Sampling Manual and/or Australian Standard 4323.1:1995 Stationary source emissions method 1: Selection of sampling positions, as appropriate for the relevant measurement
 - (e) for soil, the Guidelines for Surveying Soil and Land Resources, 2nd edition (McKenzie et al. 2008), and/or the Australian Soil and Land Survey Handbook, 3rd edition (National Committee on Soil and Terrain, 2009)
 - (f) for dust, **Australian Standard AS3580**.

Notification

- (A9) In addition to the requirements under Chapter 7, Part 1, Division 2 of the *Environmental Protection Act 1994*, the **administering authority** must be notified through the Pollution Hotline and in writing, as soon as possible, but within 48 hours of becoming aware of any of the following events:
- (a) any unauthorised **significant disturbance to land**
 - (b) potential or actual loss of structural or **hydraulic integrity** of a **dam**
 - (c) potential or actual loss of **well integrity**
 - (d) unauthorised releases of any volume of **prescribed contaminants** to **waters**
 - (e) unauthorised releases of volumes of contaminants, in any mixture, to land greater than:
 - i. 200 L of hydrocarbons; or
 - ii. 200 L of **stimulation** additives; or
 - iii. 500 L of **stimulation fluids**; or
 - iv. 10 000 L of treated sewage effluent.
 - (f) the use of **restricted stimulation fluids**
 - (g) groundwater monitoring results from a **landholder's active groundwater bore** monitored under the stimulation impact monitoring program which is a 10% or greater increase from a previous baseline value for that bore and which renders the water unfit for its intended use
 - (h) monitoring results where two out of any five consecutive samples do not comply with the relevant limits in the environmental authority.

Transitional Conditions

- (A10) By 15 November 2016, the EA holder must submit to the **administering authority** financial assurance calculations in accordance with the current Guideline - Financial assurance under the *Environmental Protection Act 1994* to be assessed by the administering authority. The financial assurance calculations must include all existing petroleum activities that have caused **significant disturbance to land**.
- (A11) The EA holder must provide the **administering authority** the amount of financial assurance stated on a statutory notice.

Financial Assurance

- (A12) Prior to any changes in petroleum activities which would result in an increase to the maximum **significant disturbance** since financial assurance was last given to the administering authority, the holder of the environmental authority must amend the financial assurance and give the **administering authority** the increased amount of financial assurance.
- (A13) If the amount of financial assurance held by the **administering authority** has been discounted and either the nominated period of financial assurance has ended, or an event or change in circumstance has resulted in the holder of the environmental authority no longer being able to meet one or more of the mandatory pre-requisites or applicable discount criteria, the holder of the environmental authority must amend the financial assurance and give the administering authority the increased amount of financial assurance as soon as practicable.

Contingency Procedures for Emergency Environmental Incidents

- (A14) Petroleum activities involving **significant disturbance to land** cannot commence until the development of written contingency procedures for emergency environmental incidents which include, but are not necessarily limited to:
- (a) a clear definition of what constitutes an environmental emergency incident or near miss for the petroleum activity.
 - (b) consideration of the risks caused by the **petroleum activity** including the impact of flooding and other natural events on the petroleum activity.
 - (c) response procedures to be implemented to prevent or minimise the risks of **environmental harm** occurring.
 - (d) the practices and procedures to be employed to restore the environment or mitigate any environmental harm caused.
 - (e) procedures to investigate causes and impacts including impact monitoring programs for releases to **waters** and/or land.
 - (f) training of staff to enable them to effectively respond.
 - (g) procedures to notify the administering authority, local government and any potentially impacted landholder.

Maintenance of Plant and Equipment

- (A15) All plant and equipment must be maintained and operated in their proper and effective condition.

- (A16) The following infrastructure must be signed with a unique reference name or number in such a way that it is clearly observable:
- (a) **low consequence dams**;
 - (b) exploration, appraisal and development wells;
 - (c) specifically authorised discharge points to air and **waters**; and
 - (d) any chemical storage facility associated with the environmentally relevant activity of chemical storage.
- (A17) Measures to prevent fauna being harmed from entrapment must be implemented during the construction and operation of well infrastructure, **dams** and pipeline trenches.

Erosion and Sediment Control

- (A18) For activities involving **significant disturbance to land**, **control measures** that are commensurate to the site-specific risk of erosion, and risk of sediment release to **waters** must be implemented to:
- (a) allow stormwater to pass through the site in a controlled manner and at non-erosive flow velocities
 - (b) minimise soil erosion resulting from wind, rain, and flowing water
 - (c) minimise the duration that disturbed soils are exposed to the erosive forces of wind, rain, and flowing water
 - (d) minimise work-related soil erosion and sediment runoff; and
 - (e) minimise negative impacts to land or properties adjacent to the activities (including roads).

Complaints

- (A19) Petroleum activities must not cause **environmental nuisance** at a **sensitive place**, other than where an **alternative arrangement** is in place.

Documentation

- (A20) A **certification** must be prepared by a **suitably qualified person** within 30 business days of completing every plan, procedure, program and report required to be developed under this environmental authority, which demonstrates that:
- (a) relevant material, including current published guidelines (where available) have been considered in the written **document**
 - (b) the content of the written document is accurate and true; and
 - (c) the document meets the requirements of the relevant conditions of the environmental authority.
- (A21) All plans, procedures, programs, reports and methodologies required under this environmental authority must be written and implemented.
- (A22) All **documents** required to be developed under this environmental authority must be kept for five years.
- (A23) All **documents** required to be prepared, held or kept under this environmental authority must be provided to the **administering authority** upon written request within the requested timeframe.
- (A24) A record of all complaints must be kept including the date, complainant's details, source, reason for the complaint, description of investigations and actions undertaken in resolving the complaint.

SCHEDULE B – AIR

Venting and Flaring

- (B1) Unless venting is authorised under the *Petroleum and Gas (Production and Safety) Act 2004* or the *Petroleum Act 1923*, waste gas must be flared in a manner that complies with all of (B1(a)) and (B1(b)) and (B1(c)), or with (B1(d)):
- (a) an automatic ignition system is used, and
 - (b) a flame is visible at all times while the waste gas is being flared, and
 - (c) there are no visible smoke emissions other than for a total period of no more than 5 minutes in any 2 hours, or
 - (d) it uses an **enclosed flare**.

Fuel Burning and Combustion Facilities

- (B2) A **fuel burning or combustion facility** is not authorised under this environmental authority.

Dust Nuisance

- (B3) If the environmental authority holder can provide evidence through monitoring that the following limits are not being exceeded then the holder is not in breach of (A19):
- (a) dust deposition of 120 milligrams per square metre per day, averaged over one **month**, when monitored in accordance with **AS 3580.10.1** *Methods for sampling and analysis of ambient air - Determination of particulates - Deposited matter - Gravimetric method of 1991*; and concentration of particulate matter with an aerodynamic diameter of less than 10 micrometre (μm) (PM10) suspended in the atmosphere of 150 micrograms per cubic metre over a 24 hour averaging time, at a **sensitive place** or commercial place downwind of the operation land, when monitored in accordance with AS3580.9.6 'Ambient air – Particulate matter – Determination of suspended particulate PM10 high-volume sampler with size-selective inlet Gravimetric method'; or
 - (b) particulate matter – Determination of suspended particulate PM10 high volume sampler with size-selective inlet – Gravimetric method, when monitored in accordance with AS 3580.9.6. *Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM(sub) 10 high volume sampler with size-selective inlet – Gravimetric method of 1990*; or any alternative method of sampling PM10, which may be permitted by the 'Air Quality Sampling Manual' as published from time to time by the administering authority.

Note: You must propose which monitoring method is appropriate in accordance with (B3)(a) or (b) or both.

SCHEDULE C – WATER

Authorised Impacts to Waters

- (C1) Contaminants that, as a result of the authorised petroleum activities, will or have the potential to cause **environmental harm** must not be released directly or indirectly to any **waters**.

Authorised impacts to wetlands

- (C2) The extraction of groundwater as part of the petroleum activity(ies) from underground aquifers must not directly or indirectly cause **environmental harm** to a **wetland**.

Authorised activities in waters

- (C3) Petroleum activities must not occur in or within 200m of a:
- (a) **wetland of high ecological significance**
 - (b) **Great Artesian Basin Spring**
 - (c) **subterranean cave GDE.**
- (C4) Only construction or maintenance of **linear infrastructure** is permitted in or within any **wetland of other environmental value** or in a **watercourse**.
- (C5) The construction or maintenance of **linear infrastructure** in a **wetland of other environmental value** must not result in the:
- (a) **clearing** of riparian vegetation outside of the minimum area practicable to carry out the works; or
 - (b) ingress of saline water into freshwater aquifers; or
 - (c) draining or filling of the wetland beyond the minimum area practicable to carry out the works.
- (C6) After the construction or maintenance works for **linear infrastructure** in a **wetland of other environmental value** are completed, the linear infrastructure must not:
- (a) drain or fill the wetland
 - (b) prohibit the flow of surface water in or out of the wetland
 - (c) lower or raise the water table and hydrostatic pressure outside the bounds of natural variability that existed before the activities commenced
 - (d) result in ongoing negative impacts to water quality
 - (e) result in bank instability; or
 - (f) result in fauna ceasing to use adjacent areas for habitat, feeding, roosting or nesting.
- (C7) The construction or maintenance of **linear infrastructure** activities in a **watercourse** must be conducted in the following preferential order:
- (a) firstly, in times where there is no water present
 - (b) secondly, in times of no flow
 - (c) thirdly, in times of flow, providing a **bankfull** situation is not expected and that flow is maintained.

- (C8) The construction or maintenance of **linear infrastructure** authorised under condition (C4) must comply with the water quality limits as specified in **Schedule C, Table 1 – Release limits for construction or maintenance of linear infrastructure**.

Schedule C, Table 1 – Release limits for construction or maintenance of linear infrastructure

Water quality parameters	Units	Water quality limits
Turbidity	Nephelometric Turbidity Units (NTU)	For a wetland of other environmental value, if background water turbidity is above 45 NTU, no greater than 25% above background water turbidity measured within a 50m radius of the construction or maintenance activity.
		For a watercourse, if background water turbidity is above 45 NTU, no greater than 25% above background water turbidity measured within 50m downstream of the construction or maintenance activity.
		For a wetland of other environmental value, if background water turbidity is equal to, or below 45 NTU, a turbidity limit of no greater than 55 NTU applies, measured within a 50m radius of the construction or maintenance activity.
		For a watercourse, if background water turbidity is equal to, or below 45 NTU, a turbidity limit of no greater than 55 NTU applies, measured within 50m downstream of the construction or maintenance activity.
Hydrocarbons	-	For a wetland of other environmental value, or watercourse, no visible sheen or slick

- (C9) Monitoring must be undertaken at a frequency that is appropriate to demonstrate compliance with condition (C8).

Register of activities in wetlands and watercourses

- (C10) A register must be kept of all **linear infrastructure** construction and maintenance activities in a **wetland of other environmental value** and **watercourses**, which must include:
- location of the activity (e.g. GPS coordinates (**GDA94**) and watercourse name)
 - estimated flow rate of surface water at the time of the activity
 - duration of works, and
 - results of impact monitoring carried out under condition (C9).

Activities in floodplains

- (C11) Petroleum activity(ies) on floodplains must be carried out in a way that does not:
- concentrate flood flows in a way that will or may cause or threaten a negative environmental impact; or
 - divert flood flows from natural drainage paths and alter flow distribution; or
 - increase the local duration of floods; or
 - increase the risk of detaining flood flows.

Seepage monitoring program

- (C12) A seepage monitoring program must be developed by a **suitably qualified person** which is commensurate with the site-specific risks of contaminant seepage from containment facilities, and which requires and plans for detection of any seepage of contaminants to groundwater as a result of storing contaminants by 15 December 2016.
- (C13) The seepage monitoring program required by condition (C13) must include but not necessarily be limited to:
- (a) identification of the containment facilities for which seepage will be monitored
 - (b) identification of trigger parameters that are associated with the potential or actual contaminants held in the containment facilities
 - (c) identification of trigger concentration levels that are suitable for early detection of contaminant releases at the containment facilities
 - (d) installation of background seepage monitoring bores where groundwater quality will not have been affected by the petroleum activities authorised under this environmental authority to use as reference sites for determining impacts
 - (e) installation of seepage monitoring bores that:
 - i. are within formations potentially affected by the containment facilities authorised under this environmental authority (i.e. within the potential area of impact)
 - ii. provide for the early detection of negative impacts prior to reaching groundwater dependent ecosystems, **landholder's active groundwater bores**, or water supply bores
 - iii. provide for the early detection of negative impacts prior to reaching migration pathways to other formations (i.e. faults, areas of unconformities known to connect two or more formations)
 - (f) monitoring of groundwater at each background and seepage monitoring bore at least quarterly for the trigger parameters identified in condition (C14(b))
 - (g) seepage trigger action response procedures for when trigger parameters and trigger levels identified in conditions (C14(b)) and (C14(c)) trigger the early detection of seepage, or upon becoming aware of any monitoring results that indicate potential groundwater contamination
 - (h) a rationale detailing the program conceptualisation including assumptions, determinations, monitoring equipment, sampling methods and data analysis; and
 - (i) provides for annual updates to the program for new containment facilities constructed in each **annual return period**.

Seepage monitoring bore drill logs

- (C14) A bore drill log must be completed for each seepage monitoring bore in condition (C14) which must include:
- (a) bore identification reference and geographical coordinate location
 - (b) specific construction information including but not limited to depth of bore, depth and length of casing, depth and length of screening and bore sealing details
 - (c) standing groundwater level and water quality parameters including physical parameter and results of laboratory analysis for the possible trigger parameters
 - (d) lithological data, preferably a stratigraphic interpretation to identify the important features including the identification of any aquifers; and
 - (e) target formation of the bore.

SCHEDULE D – NOISE

- (D1) Notwithstanding condition (A19), emission of noise from the petroleum activities at levels less than those specified in *Schedule D, Table 1 – Noise Nuisance Limits*, are not considered to be **environmental nuisance**.

Schedule D, Table 1 – Noise Nuisance Limits

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

1. The noise limits in Table 1 have been set based on the following deemed background noise levels (L_{ABG}):

7:00am—6:00 pm: 35 dBA

6:00pm—10:00 pm: 30 dBA

10:00pm—6:00 am: 25 dBA

6:00am—7:00 am: 30 dBA

- (D2) If the noise subject to a **valid complaint** is tonal or **impulsive**, the adjustments detailed in *Schedule D, 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 D, 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 detectable	+ 2 to + 5 dBA

- (D3) Notwithstanding condition (D1), emission of any low frequency noise must not exceed either (D3(a)) and (D3(b)), or (D3(c)) and (D3(d)) in the event of a **valid complaint** about low frequency noise being made to the administering authority:
- (a) 60 dB(C) measured outside the **sensitive receptor**; and
 - (b) the difference between the external A-weighted and C-weighted noise levels is no greater than 20 dB; or
 - (c) 50 dB(Z) measured inside the sensitive receptor; and
 - (d) the difference between the internal A-weighted and Z-weighted (Max L_{pZ}, 15 min) noise levels is no greater than 15 dB.

SCHEDULE E – WASTE

General Waste Management

- (E1) 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**.
- (E2) Waste, including **waste fluids**, but excluding waste used in **closed-loop systems**, must be transported off-site for lawful re-use, remediation, recycling or disposal, unless the waste is specifically authorised by another condition of this environmental authority to be disposed of or used on site.
- (E3) **Waste fluids**, other than flare precipitant stored in flare pits, or **residual drilling material** or drilling fluids stored in **sumps**, must be contained in either:
 - (a) an above ground container; or
 - (b) a **structure** which contains the wetting front.
- (E4) **Green waste** may be used on-site for either **rehabilitation** or sediment and erosion control, or both.

Pipeline Wastewater

- (E5) **Pipeline waste water**, may be released to land provided that it:
 - (a) can be demonstrated it meets the **acceptable standards for release to land**; and
 - (b) is released in a way that does not result in visible scouring or erosion or pooling or run-off or vegetation die-off.

Authorised Uses of Produced Water for Petroleum Activities

- (E6) **Produced water** may be re-used in:
 - (a) drilling and well hole activities; or
 - (b) **stimulation** activities.
- (E7) **Produced water** may be used for dust suppression provided the following criteria are met:
 - (a) the amount applied does not exceed the amount required to effectively suppress dust; and
 - (b) the application:
 - i. does not cause on-site ponding or runoff
 - ii. is directly applied to the area being dust suppressed
 - iii. does not harm vegetation surrounding the area being dust suppressed; and
 - iv. does not cause visible salting.
- (E8) **Produced water** may be used for construction purposes provided the use:
 - (a) does not result in negative impacts on the composition and structure of soil or subsoils
 - (b) is not directly or indirectly released to **waters**
 - (c) does not result in runoff from the construction site; and
 - (d) does not harm vegetation surrounding the construction site.
- (E9) If there is any indication that any of the circumstances in condition (E7) and (E8) above is occurring the use must cease immediately and the affected area must be remediated without delay.

Sewage Treatment

- (E10) Treated sewage effluent or **greywater** from a treatment system with a **daily peak design capacity** of less than 21 **equivalent persons (EP)** may be released to land provided it:
- (a) be to a fenced and signed contaminant release area(s);
 - (b) does not contain any properties nor contain any organisms or other contaminants in concentrations that are capable of causing **environmental harm**;
 - (c) not result in pooling or run-off or aerosols or spray drift or vegetation die-off;
 - (d) minimises deep drainage below the root zone of any vegetation;
 - (e) does not adversely affect the quality of shallow aquifers;
 - (f) be to a contaminant release area(s) that is kept vegetated with groundcover, that is:
 - i. not a declared pest species; and
 - ii. kept in a viable state for transpiration and nutrient uptake.

Residual Drilling Material

- (E11) If **sumps** are used to store **residual drilling material** or drilling fluids, they must only be used for the duration of drilling activities.
- (E12) **Residual drilling material** can only be disposed of on-site by **mix-bury-cover method** if the residual drilling material meets the **approved quality criteria**.
- (E13) Records must be kept to demonstrate compliance with conditions (E11) and (E12).

SCHEDULE F – LAND

General

- (F1) Contaminants must not be directly or indirectly released to land except for those releases authorised by Conditions (E6), (E8) and (E9).

Top Soil Management

- (F2) **Top soil** must be managed in a manner that preserves its biological and chemical properties.

Land Management

- (F3) Land that has been **significantly disturbed** by the petroleum activities must be managed to ensure that mass movement, gully erosion, rill erosion, sheet erosion and tunnel erosion do not occur on that land.

Chemical Storage

- (F4) Chemicals and fuels stored, must be effectively contained and where relevant, meet Australian Standards, where such a standard is applicable.

Pipeline Operation and Maintenance

- (F5) Pipeline operation and maintenance must be in accordance, to the greatest practicable extent, with the relevant section of the APIA Code of Environmental Practice: Onshore Pipelines (2009).

Pipeline Reinstatement and Revegetation

- (F6) Pipeline trenches must be backfilled and topsoils **reinstated** within three **months** after pipe laying.
- (F7) **Reinstatement** and **revegetation** of the pipeline right of way must commence within 6 **months** after cessation of petroleum activities for the purpose of pipeline construction.
- (F8) Backfilled, **reinstated** and **revegetated** pipeline trenches and right of ways must be:
- (a) a **stable** landform
 - (b) re-profiled to a level consistent with surrounding soils
 - (c) re-profiled to original contours and established drainage lines; and
 - (d) vegetated with groundcover which is not a declared pest species, and which is established and **growing**.

SCHEDULE G – BIODIVERSITY

Confirming Biodiversity Values

- (G1) Prior to undertaking activities that result in **significant disturbance to land** in areas of native vegetation, confirmation of on-the-ground **biodiversity values** of the native vegetation communities at that location must be undertaken by a **suitably qualified person**.
- (G2) A **suitably qualified person** must develop and certify a **methodology** so that condition (F2) can be complied with and which is appropriate to confirm on-the-ground **biodiversity values**.
- (G3) Where mapped **biodiversity values** differ from those confirmed under conditions (G2) and (G3), petroleum activities may proceed in accordance with the conditions of the environmental authority based on the confirmed on-the-ground biodiversity value.

Planning for Land Disturbance

- (G4) The location of the petroleum activities must be selected in accordance with the following site planning principles:
- (a) maximise the use of **areas of pre-existing disturbance**
 - (b) in order of preference, avoid, minimise or mitigate any impacts, including cumulative impacts, on areas of native vegetation or other areas of ecological value
 - (c) minimise disturbance to land that may result in **land degradation**
 - (d) in order of preference, avoid then minimise isolation, fragmentation, edge effects or dissection of tracts of native vegetation; and
 - (e) in order of preference, avoid then minimise **clearing** of native mature trees.
- (G5) **Linear infrastructure** construction corridors must:
- (a) maximise co-location
 - (b) be minimised in width to the greatest practicable extent; and
 - (c) for linear infrastructure that is an essential **petroleum activity** authorised in an **Environmentally Sensitive Area** or its **protection zone**, be no greater than 40m in total width.
- (G6) Petroleum activities are not permitted in **Category A, B or C Environmentally Sensitive Areas**.
- (G7) **Essential petroleum activities** may be undertaken in areas of **pre-existing disturbance** in the **primary protection zones** of **Category B Environmentally Sensitive Areas** that are 'endangered' **regional ecosystems** and **Category C Environmentally Sensitive Areas** other than 'nature refuges' or 'koala habitat' areas, providing those activities do not have a measurable negative impact on the adjacent Environmentally Sensitive Area.
- (G8) **Significant residual impacts** to **prescribed environmental matters** are not authorised under this environmental authority or the *Environmental Offsets Act 2014*.
- (G9) Records demonstrating that each impact to a prescribed environmental matter did not, or is not likely to, result in a significant residual impact to that matter must be:
- (a) completed by an appropriately qualified person; and
 - (b) kept for the life of the environmental authority.

SCHEDULE H – REHABILITATION

Rehabilitation Planning

- (H1) A **Rehabilitation Plan** must be developed by a **suitably qualified person** and must include the:
- (a) rehabilitation goals; and
 - (b) procedures to be undertaken for rehabilitation that will:
 - i. achieve the requirements of conditions (H2) to (H6), inclusive; and
 - ii. provide for appropriate monitoring and maintenance.

Transitional Rehabilitation

- (H2) **Significantly disturbed** areas that are no longer required for the on-going petroleum activities, must be **rehabilitated** within **12 months** (unless an exceptional circumstance in the area to be rehabilitated (e.g. a flood event) prevents this timeframe being met) and be maintained to meet the following acceptance criteria:
- (a) contaminated land resulting from petroleum activities is remediated and rehabilitated
 - (b) the areas are:
 - i. non-polluting
 - ii. a **stable** landform
 - iii. re-profiled to contours consistent with the surrounding landform
 - (c) surface drainage lines are re-established
 - (d) **top soil** is reinstated; and
 - (e) either:
 - i. groundcover, that is not a declared pest species, is **growing**; or
 - ii. an alternative soil stabilisation **methodology** that achieves effective stabilisation is implemented and maintained.

Final Rehabilitation Acceptance Criteria

- (H3) All **significantly disturbed** areas caused by petroleum activities which are not **being or intended to be utilised by the landholder or overlapping tenure holder**, must be **rehabilitated** to meet the following final acceptance criteria measured either against the highest ecological value **adjacent land use** or the **pre-disturbed land use**:
- (a) greater than or equal to 70% of native ground cover **species richness**
 - (b) greater than or equal to the total per cent of ground cover
 - (c) less than or equal to the per cent species richness of declared plant pest species; and
 - (d) where the adjacent land use contains, or the pre-clearing land use contained, one or more **regional ecosystem(s)**, then at least one regional ecosystem(s) from the same broad vegetation group, and with the equivalent biodiversity status or a biodiversity status with a higher conservation value as any of the regional ecosystem(s) in either the adjacent land or pre-disturbed land, must be present.

Continuing Conditions

- (H4) Conditions (H2), (H3) and (H4) continue to apply after this environmental authority has ended or ceased to have effect.

Remaining Dams

- (H5) Where there is a **dam** (including a **low consequence dam**) that is **being or intended to be utilised by the landholder or overlapping tenure holder**, the dam must be decommissioned to no longer accept inflow from the petroleum activity(ies) and the contained water must be of a quality suitable for the intended on-going uses(s) by the landholder or overlapping tenure holder.

SCHEDULE I – DAMS

Assessment of consequence category

- (I1) Only **low consequence dams** are authorised under this environmental authority.
- (I2) The **consequence category** of any **structure** must be **assessed** by a **suitably qualified and experienced person** in accordance with *the Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933)* at the following times:
 - (a) prior to the design and **construction** of the structure, if it is not an **existing structure**; or
 - (b) prior to any change in its purpose or the nature of its stored contents.
- (I3) A **consequence assessment** report and **certification** must be prepared for each **structure assessed** and the report may include a consequence assessment for more than one structure.
- (I4) Certification must be provided by the suitably qualified and experienced person who undertook the assessment, in the form set out in the *Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933)*.

Transfer arrangements

- (I5) The holder must provide a copy of any reports, documentation and certifications prepared under this authority, including but not limited to any Register of Regulated Structures, consequence assessment, design plan and other supporting documentation, to a new holder on transfer of this authority.

Transitional arrangements

- (I6) All **existing structures** identified in *Schedule A, Table 1 – Authorised Petroleum Activities* that have not been **assessed** in accordance with either the Manual or the former *Manual for Assessing Hazard Categories and Hydraulic Performance of Dams* must be assessed and certified by a **suitably qualified person** by 15 September 2017.
- (I7) All existing structures must subsequently comply with the timetable for any further assessments in accordance with the Manual specified in Table 1 (Transitional hydraulic performance requirements for existing structures), depending on the consequence category for each existing structure assessed in the most recent previous certification for that structure.
- (I8) Table 1 ceases to apply for a structure once any of the following events has occurred:
 - (a) it has been brought into compliance with the hydraulic performance criteria applicable to the structure under the Manual; or
 - (b) it has been decommissioned; or
 - (c) it has been certified as no longer being assessed as a regulated structure.
- (I9) Certification of the transitional assessment required by (I6) and (I7) (as applicable) must be provided to the administering authority within 6 months of amendment of the authority adopting this schedule.

Transition period required for existing structures to achieve the requirements of the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Dams</i>			
Compliance with criteria	High consequence	Significant consequence	Low consequence
>90% and a history of good compliance performance in last 5 years	No transition required	No transition required	No transitional conditions apply. Review consequence assessment every 7 years.
>70%-≤90%	Within 7 years, unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	Within 10 years, unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	No transitional conditions apply. Review consequence assessment every 7 years.
>50-≤70%	Within 5 years unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	Within 7 years unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	Review consequence assessment every 7 years.
≤50%	Within 5 years or as per compliance requirements (e.g. TEP timing).	Within 5 years or as per compliance requirements (e.g. TEP timing).	Review consequence assessment every 7 years.
Regulated levee designed to prevent the ingress of clean flood water <100% compliant ¹	Within 5 years unless otherwise agreed with the administering authority.		

¹ Levees designed for the diversion of contaminated waters or protection of the structural integrity of a dam are not to be considered as part of this provision. These levees are considered a key design element of the relevant dam and transitional periods should as such align to that relevant compliance criteria and consequence category.

SCHEDULE J – WELL CONSTRUCTION AND MAINTENANCE

Drilling Activities

- (J1) Oil based or **synthetic based drilling muds** must not be used in the carrying out of the petroleum activities.
- (J2) Drilling activities must not result in the connection of the target oil producing formation and another aquifer.
- (J3) Practices and procedures must be in place to detect, as soon as practicable, any fractures that have or may result in the connection of a target formation and another aquifer as a result of drilling activities.
- (J4) Polycyclic aromatic hydrocarbons or products that contain polycyclic aromatic hydrocarbons must not be used in **stimulation fluids** in concentrations above the **reporting limit**.
- (J5) **Stimulation** activities must not negatively affect water quality, other than that within the **stimulation impact zone** of the target oil producing formation.
- (J6) **Stimulation** activities must not cause the connection of the target oil producing formation and another aquifer.
- (J7) The internal and external mechanical integrity of the well system prior to and during **stimulation** must be ensured such that there is:
 - (a) no significant leakage in the casing, tubing, or packer; and
 - (b) no significant fluid movement into another aquifer through vertical channels adjacent to the well bore hole.
- (J8) Practices and procedures must be in place to detect, as soon as practicable, any fractures that cause the connection of a target oil producing formation and another aquifer.

Stimulation Risk Assessment

- (J9) Prior to undertaking **stimulation** activities, a risk assessment must be developed to ensure that stimulation activities are managed to prevent **environmental harm**.
- (J10) The **stimulation** risk assessment must be carried out for every well to be stimulated prior to stimulation being carried out at that well and address issues at a relevant geospatial scale such that changes to features and attributes are adequately described and must include, but not necessarily be limited to:
 - (a) a process description of the stimulation activity to be applied, including equipment and a comparison to best international practice
 - (b) provide details of where, when and how often stimulation is to be undertaken on the tenures covered by this environmental authority
 - (c) a geological model of the field to be stimulated including geological names, descriptions and depths of the target oil producing formation(s)
 - (d) naturally occurring geological faults
 - (e) seismic history of the region (e.g. earth tremors, earthquakes)
 - (f) proximity of overlying and underlying aquifers

- (g) description of the depths that aquifers with environmental values occur, both above and below the target oil producing formation
- (h) identification and proximity of landholder' active groundwater bores in the area where stimulation activities are to be carried out
- (i) the environmental values of groundwater in the area
- (j) an assessment of the appropriate limits of reporting for all water quality indicators relevant to stimulation monitoring in order to accurately assess the risks to environmental values of groundwater
- (k) description of overlying and underlying formations in respect of porosity, permeability, hydraulic conductivity, faulting and fracture propensity
- (l) consideration of barriers or known direct connections between the target oil producing formation and the overlying and underlying aquifers
- (m) a description of the well mechanical integrity testing program
- (n) process control and assessment techniques to be applied for determining extent of stimulation activities (e.g. microseismic measurements, modelling etc.)
- (o) practices and procedures to ensure that the stimulation activities are designed to be contained within the target oil producing formation
- (p) groundwater **transmissivity**, flow rate, hydraulic conductivity and direction(s) of flow
- (q) a description of the chemical compounds used in stimulation activities (including estimated total mass, estimated composition, chemical abstract service numbers and properties), their mixtures and the resultant compounds that are formed after stimulation
- (r) a mass balance estimating the concentrations and absolute masses of chemical compounds that will be reacted, returned to the surface or left in the target oil producing formation subsequent to stimulation
- (s) an environmental hazard assessment of the chemicals used including their mixtures and the resultant chemicals that are formed after stimulation including:
 - i. toxicological and ecotoxicological information of chemical compounds used
 - ii. information on the persistence and bioaccumulation potential of the chemical compounds used; and
 - iii. identification of the chemicals of potential concern in **stimulation fluids** derived from the risk assessment
- (t) an environmental hazard assessment of use, formation of, and detection of polycyclic aromatic hydrocarbons in stimulation activities
- (u) identification and an environmental hazard assessment of using radioactive tracer beads in stimulation activities
- (v) an environmental hazard assessment of leaving chemical compounds in stimulation fluids in the target oil producing formation for extended periods subsequent to stimulation
- (w) human health exposure pathways to operators and the regional population
- (x) risk characterisation of environmental impacts based on the environmental hazard assessment
- (y) potential impacts to landholder bores as a result of stimulation activities
- (z) an assessment of cumulative underground impacts, spatially and temporally of the stimulation activities to be carried out on the tenures covered by this environmental authority; and
- (aa) potential environmental or health impacts which may result from stimulation activities including but not limited to water quality, air quality (including suppression of dust and other airborne contaminants), noise and vibration.

Water Quality Baseline Monitoring

- (J11) Prior to undertaking any **stimulation** activity, a baseline bore assessment must be undertaken of the water quality of:
- (a) all **landholder's active groundwater bores** (subject to access being permitted by the landholder) that are spatially located within a two (2) kilometre horizontal radius from the location of the stimulation initiation point within the target oil producing formation; and
 - (b) all landholders' active groundwater bores (subject to access being permitted by the landholder) in any aquifer that is within 200m above or below the target oil producing formation and is spatially located with a two (2) kilometre radius from the location of the stimulation initiation point; and
 - (c) any other bore that could potentially be adversely impacted by the stimulation activities in accordance with the findings of the risk assessment required by conditions (J9) and (J10).
- (J12) Prior to undertaking **stimulation** activities at a well, there must be sufficient water quality data to accurately represent the water quality in the well to be stimulated. The data must include as a minimum the results of analyses for the parameters in condition (J13).
- (J13) Baseline bore and well assessments must include relevant analytes and physico-chemical parameters to be monitored in order to establish baseline water quality and must include, but not necessarily be limited to:
- (a) pH
 - (b) electrical conductivity [$\mu\text{S/m}$]
 - (c) turbidity [NTU]
 - (d) total dissolved solids [mg/L]
 - (e) temperature [$^{\circ}\text{C}$]
 - (f) dissolved oxygen [mg/L]
 - (g) dissolved gases (methane, chlorine, carbon dioxide, hydrogen sulfide) [mg/L]
 - (h) alkalinity (bicarbonate, carbonate, hydroxide and total as CaCO_3) [mg/L]
 - (i) sodium adsorption ratio (SAR)
 - (j) anions (bicarbonate, carbonate, hydroxide, chloride, sulphate) [mg/L]
 - (k) cations (aluminium, calcium, magnesium, potassium, sodium) [mg/L]
 - (l) dissolved and total metals and metalloids (including but not necessarily being limited to: aluminium, arsenic, barium, borate (boron), cadmium, total chromium, copper, iron, fluoride, lead, manganese, mercury, nickel, selenium, silver, strontium, tin and zinc) [$\mu\text{g/L}$]
 - (m) total petroleum hydrocarbons [$\mu\text{g/L}$]
 - (n) **BTEX** (as benzene, toluene, ethylbenzene, ortho-xylene, para- and meta-xylene, and total xylene) [$\mu\text{g/L}$]
 - (o) polycyclic aromatic hydrocarbons (including but not necessarily being limited to: naphthalene, phenanthrene, benzo[a]pyrene) [$\mu\text{g/L}$]
 - (p) sodium hypochlorite [mg/L]
 - (q) sodium hydroxide [mg/L]
 - (r) formaldehyde [mg/L]
 - (s) ethanol [mg/L]; and
 - (t) gross alpha + gross beta or radionuclides by gamma spectroscopy [Bq/L].

Stimulation Impact Monitoring Program

- (J14) A **Stimulation** Impact Monitoring Program must be developed prior to the carrying out of stimulation activities which must be able to detect adverse impacts to water quality from stimulation activities and must consider the findings of the risk assessment required by conditions (J9) and (J10) that relate to stimulation activities and must include, as a minimum, monitoring of:
- (a) the **stimulation fluids** to be used in stimulation activities at sufficient frequency and which sufficiently represents the quantity and quality of the fluids used
 - (b) flow back **waters** from stimulation activities at sufficient frequency and which sufficiently represents the quality of that flow back water
 - (c) flow back waters from stimulation activities at sufficient frequency and accuracy to demonstrate that 150% of the volume used in stimulation activities has been extracted from the stimulated well; and
 - (d) all bores in accordance with condition (J11).
- (J15) The **Stimulation** Impact Monitoring Program must provide for monitoring of:
- (a) analytes and physico-chemical parameters relevant to baseline bore and well assessments to enable data referencing and comparison including, but not necessarily being limited to the analytes and physico-chemical parameters in condition (J13); and
 - (b) any other analyte or physico-chemical parameters that will enable detection of adverse water quality impacts and the inter-connection with a non-target aquifer as a result of stimulation activities including chemical compounds that are actually or potentially formed by chemical reactions with each other or coal seam materials during stimulation activities.
- (J16) The **Stimulation** Impact Monitoring Program must provide for monitoring of the bores in condition (J14) at the following minimum frequency:
- (a) monthly for the first six **months** subsequent to stimulation activities being undertaken; then
 - (b) annually for the first five years subsequent to stimulation being undertaken or until analytes and physico-chemical parameters listed in conditions (J13(a)) to (J13(t)) inclusive, are not detected in concentrations above baseline bore monitoring data on two consecutive monitoring occasions.
- (J17) The results of the **Stimulation** Impact Monitoring Program must be made available to any potentially affected landholder upon request by that landholder.

SCHEDULE K - DEFINITIONS

Where a term is not defined, 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.

acceptable standards for release to land	means wastewater of the following quality as determined by monitoring results or by characterisation: (a) electrical conductivity (EC) not exceeding 3000µS/cm (b) sodium adsorption ratio (SAR) not exceeding 8 (c) pH between 6.0 and 9.0 (d) heavy metals (measured as total) meets the respective short term trigger value in section 4.2.6, Table 4.2.10—Heavy metals and metalloids in Australian and New Zealand Guidelines for Fresh and Marine Water Quality (e) does not contain biocides.								
adjacent land use(s)	means the ecosystem function adjacent to an area of significant disturbance, or where there is no ecosystem function, the use of the land. An adjacent land use does not include an adjacent area that shows evidence of edge effect.								
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 <i>Environmental Protection Act 1994</i> —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.								
alternative arrangement	means a written agreement about the way in which a particular environmental nuisance impact will be dealt with at a sensitive place, and may include an agreed period of time for which the arrangement is in place. An alternative arrangement may include, but is not limited to, a range of nuisance abatement measures to be installed at the sensitive place, or provision of alternative accommodation for the duration of the relevant nuisance impact.								
annual return period	means the most current 12-month period between two anniversary dates.								
appraisal well	means a petroleum well to test the potential of one (1) or more natural underground reservoirs for producing or storing petroleum. For clarity, an appraisal well does not include an exploration well.								
approved quality criteria	for the purposes of residual drilling materials, means the residual drilling material meet the following quality standards: Part A In all cases: <table border="1"> <thead> <tr> <th>Parameter</th><th>Maximum concentration</th></tr> </thead> <tbody> <tr> <td>pH</td><td>6–10.5 (range)</td></tr> <tr> <td>Electrical Conductivity</td><td>20dS/m (20,000µS/cm)</td></tr> <tr> <td>Chloride*</td><td>8000mg/L</td></tr> </tbody> </table> *Chloride analysis is only required if an additive containing chloride was used in the drilling process The limits in Part A must be measured in the clarified filtrate of oversaturated solids prior to mixing. Part B If any of the following metals are a component of the drilling fluids, then for that metal:	Parameter	Maximum concentration	pH	6–10.5 (range)	Electrical Conductivity	20dS/m (20,000µS/cm)	Chloride*	8000mg/L
Parameter	Maximum concentration								
pH	6–10.5 (range)								
Electrical Conductivity	20dS/m (20,000µS/cm)								
Chloride*	8000mg/L								

Date Granted: 15 September 2016

	Parameter	Maximum concentration
	Arsenic	20mg/kg
	Selenium	5mg/kg
	Boron	100mg/kg
	Cadmium	3mg/kg
	Chromium (total)	400mg/kg
	Copper	100mg/kg
	Lead	600mg/kg
	The limits in Part B and Part C refer to the post soil/by-product mix.	
	Part C If a hydrocarbon sheen is visible, the following hydrocarbon fractions:	
	TPH	Maximum concentration
	C6-C10	170mg/kg
	C10-C16	150mg/kg
	C16-C34	1300mg/kg
	C34-C40	5600mg/kg
	Total Polycyclic Aromatic Hydrocarbons (PAHs)	20mg/kg
	Phenols (halogenated)	1mg/kg
	Phenols (non-halogenated)	60mg/kg
	Monocyclic aromatic hydrocarbons (Total sum of benzene, toluene, ethyl benzene, xylenes (includes ortho, para and meta xylenes) and styrene)	7mg/kg
	Benzene	1mg/kg
areas of pre-existing disturbance	means areas where environmental values have been negatively impacted as a result of anthropogenic activity and these impacts are still evident. Areas of pre-disturbance may include areas where legal clearing, logging, timber harvesting, or grazing activities have previously occurred, where high densities of weed or pest species are present which have inhibited re-colonisation of native regrowth, or where there is existing infrastructure (regardless of whether the infrastructure is associated with the authorised petroleum activities). The term 'areas of pre-disturbance' does not include areas that have been impacted by wildfire/s, controlled burning, flood or natural vegetation die-back.	
assess or assessment	in relation to a consequence 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 of the assessment: (a) exactly what has been assessed and the precise nature of that determination; (b) the relevant legislative, regulatory and technical criteria on which the assessment has been based; (c) the relevant data and facts on which the assessment has been based, the source of that material, and the efforts made to obtain all relevant data and facts; and (d) the reasoning on which the assessment has been based using the relevant data and facts, and the relevant criteria.	

associated water	means underground water taken or interfered with, if the taking or interference happens during the course of, or results from, the carrying out of another authorised activity under a petroleum authority, such as a petroleum well, and includes waters also known as produced formation water. The term includes all contaminants suspended or dissolved within the water.
associated works	in relation to a dam, means: (a) operations of any kind and all things constructed, erected or installed for that dam; and (b) any land used for those operations.
Australian Standard 3580	means any of the following publications: • AS3580.10.1 Methods for sampling and analysis of ambient air—Determination of particulate matter—Deposited matter—Gravimetric method. • AS3580.9.6 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM10 high volume sampler with size-selective inlet—Gravimetric method • AS3580.9.9 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter— PM10 low volume sampler—Gravimetric sampler.
authorised resource activities	means the resource activities authorised to be carried out under condition (A1).
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% of the measurement time period T of not less than 15 minutes (or $L_{A90, adj, 15 mins}$), using Fast response.
bankfull	means the channel flow rate that exists when the water is at the elevation of the channel bank above which water begins to spill out onto the floodplain. The term describes the condition of the channel relative to its banks (e.g. overbank, in-bank, bankfull, low banks, high bank).
bed	of any waters, has the meaning in Schedule 12 of the <i>Environmental Protection Regulation 2008</i> and— (a) includes an area covered, permanently or intermittently, by tidal or non-tidal waters; but (b) does not include land adjoining or adjacent to the bed that is from time to time covered by floodwater.
being or intended to be utilised by the landholder or overlapping tenure holder	for significantly disturbed land, means there is a written agreement (e.g. land and compensation agreement) between the landholder or the overlapping tenure holder and the holder of the environmental authority identifying that the landholder or the overlapping tenure holder has a preferred use of the land such that rehabilitation standards for revegetation by the holder of the environmental authority are not required. For dams, means there is a written agreement (e.g. land and compensation agreement) between the landholder or the overlapping tenure holder and the holder of the environmental authority identifying that the landholder or the overlapping tenure holder has a preferred use for the dam such that rehabilitation standards for revegetation by the holder of the environmental authority are not required.
biodiversity values	for the purposes of this environmental authority, means Environmentally Sensitive Areas, prescribed environmental matters and wetlands.
BTEX	means benzene, toluene, ethylbenzene, ortho-xylene, para-xylene, meta-xylene and total xylene.

Category A Environmentally Sensitive Area	means any area listed in Schedule 12, section 1 of the <i>Environmental Protection Regulation 2008</i> .
Category B Environmentally Sensitive Area	means any area listed in Schedule 12, section 2 of the <i>Environmental Protection Regulation 2008</i> .
Category C Environmentally Sensitive Area	means any of the following areas: • nature refuges as defined in the conservation agreement for that refuge under the <i>Nature Conservation Act 1992</i> • koala habitat areas as defined under the Nature Conservation (Koala) Conservation Plan 2006 • state forests or timber reserves as defined under the <i>Forestry Act 1959</i> • regional parks (previously known as resource reserves) under the <i>Nature Conservation Act 1992</i> • an area validated as 'essential habitat' or 'essential regrowth habitat' from ground-truthing surveys in accordance with the <i>Vegetation Management Act 1999</i> for a species of wildlife listed as endangered or vulnerable under the <i>Nature Conservation Act 1992</i> • 'of concern regional ecosystems' that are remnant vegetation and identified in the database called 'RE description database' containing regional ecosystem numbers and descriptions.
certified or certification	in relation to any matter other than a design plan, 'as constructed' drawings or an annual report regarding dams means, a Statutory Declaration by a suitably qualified person or suitably qualified third party accompanying the written document stating: • the person's qualifications and experience relevant to the function • that the person has not knowingly included false, misleading or incomplete information in the document • that the person has not knowingly failed to reveal any relevant information or document to the administering authority • that the document addresses the relevant matters for the function and is factually correct; and • that the opinions expressed in the document are honestly and reasonably held.
clearing	has the meaning in the dictionary of the <i>Vegetation Management Act 2000</i> and for vegetation— (a) means remove, cut down, ringbark, push over, poison or destroy in any way including by burning, flooding or draining; but (b) does not include destroying standing vegetation by stock, or lopping a tree.
closed-loop systems	means using waste on site in a way that does not release waste or contaminants in the waste to the environment.
control measure	has the meaning in section 47 of the <i>Environmental Protection Regulation 2008</i> and means a device, equipment, structure, or management strategy used to prevent or control the release of a contaminant or waste to the environment.
daily peak design capacity	for sewage treatment works, has the meaning in Schedule 2, section 63(4) of the <i>Environmental Protection Regulation 2008</i> as the higher equivalent person (EP) for the works calculated using each of the formulae found in the definition for EP.

dam(s)	means a land-based structure or a void that contains, diverts or controls flowable substances, and includes any substances that are thereby contained, diverted or controlled by that land-based structure or void and associated works.
development wells	means a petroleum well which produces or stores petroleum. For clarity, a development well does not include an appraisal well.
document	has the meaning in the <i>Acts Interpretation Act 1954</i> 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).
ecologically dominant layer	has the meaning in the Methodology for Surveying and Mapping of Regional Ecosystems and Vegetation Communities in Queensland (Version 3.2 August 2012) and means the layer making the greatest contribution to the overall biomass of the site and the vegetation community (NLWRA 2001). This is also referred to as the ecologically dominant stratum or the predominant canopy in woody ecosystems.
ecosystem function	means the interactions between and within living and nonliving components of an ecosystem and generally correlates with the size, shape and location of the vegetation community.
enclosed flare	means a device where the residual gas is burned in a cylindrical or rectilinear enclosure that includes a burning system and a damper where air for the combustion reaction is admitted.
environmental harm	has the meaning in section 14 of the <i>Environmental Protection Act 1994</i> and means any adverse effect, or potential adverse effect (whether temporary or permanent and of whatever magnitude, duration or frequency) on an environmental value, and includes environmental nuisance. Environmental harm may be caused by an activity— (a) whether the harm is a direct or indirect result of the activity; or (b) whether the harm results from the activity alone or from the combined effects of the activity and other activities or factors.
environmental nuisance	has the meaning in section 15 of the <i>Environmental Protection Act 1994</i> and means unreasonable interference or likely interference with an environmental value caused by— (a) aerosols, fumes, light, noise, odour, particles or smoke; or (b) an unhealthy, offensive or unsightly condition because of contamination; or (c) another way prescribed by regulation.
Environmentally Sensitive Area	means Category A, B or C Environmentally Sensitive Areas (ESAs)
equivalent person or EP	has the meaning under section 3 of the Planning Guidelines For Water Supply and Sewerage, 2005, published by the Queensland Government. It is calculated in accordance with Schedule 2, section 63(4) of the <i>Environmental Protection Regulation 2008</i> where: • $EP = V/200$ where V is the volume, in litres, of the average dry weather flow of sewage that can be treated at the works in a day; or • $EP = M/2.5$ where M is the mass, in grams, of phosphorus in the influent that the works are designed to treat as the inlet load in a day.

essential petroleum activities	means activities that are essential to bringing the resource to the surface and are only the following: • low impact petroleum activities • geophysical, geotechnical, geological, topographic and cadastral surveys (including seismic, sample /test / geotechnical pits, core holes) • single well sites not exceeding 1 hectare disturbance and multi-well sites not exceeding 1.5 hectare disturbance • well sites with monitoring equipment (including monitoring bores): ○ for single well sites, not exceeding 1.25 hectares disturbance ○ for multi-well sites, not exceeding 1.75 hectares disturbance • well sites with monitoring equipment (including monitoring bores) and tanks (minimum 1 ML) for above ground fluid storage: ○ for single well sites, not exceeding 1.5 hectares disturbance ○ for multi-well sites, not exceeding 2.0 hectares disturbance • associated infrastructure located on a well site necessary for the construction and operations of wells: ○ water pumps and generators ○ flare pits ○ chemical / fuel storages ○ sumps for residual drilling material and drilling fluids ○ tanks, or dams which are not significant or high consequence dams to contain wastewater (e.g. stimulation flow back waters, produced water) ○ pipe laydown areas ○ soil and vegetation stockpile areas ○ a temporary camp associated with a drilling rig that may involve sewage treatment works that are no release works ○ temporary administration sites and warehouses ○ dust suppression activities using water that meets the quality and operational standards approved under the environmental authority • 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 • supporting access tracks • gathering / flow pipelines from a well head to the initial compression facility • activities necessary to achieve compliance with the conditions of the environmental authority in relation to another essential petroleum activity (e.g. sediment and erosion control measures, rehabilitation).
exploration well	means a petroleum well that is drilled to: • explore for the presence of petroleum or natural underground reservoirs suitable for storing petroleum; or • obtain stratigraphic information for the purpose of exploring for petroleum. For clarity, an exploration well does not include an appraisal or development well.
fuel burning or combustion facility	means a permanent fuel burning or combustion equipment which in isolation, or combined in operation, or which are interconnected, is, or are capable of burning more than 500 kg of fuel in an hour.
GDA	means Geocentric Datum of Australia.

Great Artesian Basin (GAB) spring	means an area protected under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> because it is considered to be a Matter of National Environmental Significance and identified as a: • community of native species dependent on natural discharge of groundwater from the Great Artesian Basin; or • Great Artesian Basin spring; or • Great Artesian Basin discharge spring wetland. A GAB spring includes a spring vent, spring complex or watercourse spring and includes the land to which water rises naturally from below the ground and the land over which the water then flows. <i>Note: The Australian Government's Protected Matters Search Tool should be used to get an indication of whether the area of interest may contain an MNES spring.</i> <i>Note: The GAB springs dataset can be requested from the Queensland Government Herbarium</i>
green waste	means waste that is grass cuttings, trees, bushes, shrubs, material lopped from trees, untreated timber or other waste that is similar in nature but does not include declared pest species.
greywater	means wastewater generated from domestic activities such as laundry, dishwashing, and bathing. Greywater does not include sewage.
groundwater dependent ecosystem (GDE)	means ecosystems which require access to groundwater on a permanent or intermittent basis to meet all or some of their water requirements so as to maintain their communities of plants and animals, ecological processes and ecosystem services. For the purposes of the environmental authority, groundwater dependent ecosystems do not include those mapped as "unknown".
growing	means to increase by natural development, as any living organism or part thereof by assimilation of nutriment; increase in size or substance.
hydraulic integrity	refers to the capacity of a dam to contain or safely pass flowable substances based on its design.
impulsive (for 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.
LA 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.
LAeq, 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.
land degradation	has the meaning in the <i>Vegetation Management Act 1999</i> and means the following: • soil erosion • rising water tables • the expression of salinity • mass movement by gravity of soil or rock • stream bank instability • a process that results in declining water quality.
landholder's active groundwater bore	means bores that are able to continue to provide a reasonable yield of water in terms of quantity for the bores authorised purpose or use. This term does not include monitoring bores owned by the administering authority of the <i>Water Act 2000</i> .
linear infrastructure	means powerlines, pipelines, flowlines, roads and access tracks.

liquid	means a substance which is flowing and offers no permanent resistance to changes of shape.
long term noise event	means 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 consequence dam	means any dam that is not classified as high or significant as assessed using the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures, published by the administering authority, as amended from time to time.
low impact petroleum activities	means 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 which cannot be rehabilitated immediately using hand tools after the activity is completed. Examples of such activities include but are not necessarily limited to soil surveys (excluding test pits), topographic surveys, cadastral surveys and ecological surveys, may include installation of monitoring equipment provided that it is within the meaning of low impact 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.
Map of referable wetlands	has the meaning in Schedule 12 of the <i>Environmental Protection Regulation 2008</i> and means the 'Map of referable wetlands', a document approved by the chief executive on 4 November 2011 and published by the department, as amended from time to time by the chief executive under section 144D.
Max L_{pA} , 15 min	means the absolute maximum instantaneous A-weighted sound pressure level, measured over 15 minutes.
Max L_{pZ} , 15 min	means the maximum value of the Z-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 difference source or source location.
methodology	means the science of method, especially dealing with the logical principles underlying the organisation of the various special sciences, and the conduct of scientific inquiry.
mix-bury-cover method	means the stabilisation of residual drilling solids in the bottom of a sump by mixing with subsoil and which occurs in accordance with the following methodology: - the base of the subsoil and residual solid mixture must be separated from the groundwater table by at least one metre of a continuous layer of impermeable subsoil material ($k_w=10-8m/s$) or subsoil with a clay content of greater than 20%; and - the residual solids is mixed with subsoil in the sump and cover; and - the subsoil and residual solids is mixed at least three parts subsoil to one part waste (v/v); and - a minimum of one metre of clean subsoil must be placed over the subsoil and residual solids mixture; and - topsoil is replaced.
month	has the meaning in the <i>Acts Interpretation Act 1954</i> 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.
petroleum activity	means an authorised resource activity listed under the heading “Petroleum activities” in Schedule A, Table 1 – Authorised Petroleum Activities.
pipeline waste water	means hydrostatic testing water, flush water or water from low point drains.
pre-disturbed land use	means the function or use of the land as documented prior to significant disturbance occurring at that location.
predominant species	has the meaning in the Methodology for Surveying and Mapping of Regional Ecosystems and Vegetation Communities in Queensland (Version 3.2 August 2012) and means a species that contributes most to the overall above-ground biomass of a particular stratum.
prescribed contaminants	has the meaning in section 440ZD of the <i>Environmental Protection Act 1994</i> and means: (a) earth; or (b) a contaminant prescribed under section 440ZF.
prescribed environmental matters	has the meaning in section 10 of the <i>Environmental Offsets Act 2014</i> , limited to the matters of State environmental significant listed in schedule 2 of the Environmental Offsets Regulation 2014.
primary protection zone	means an area within 200m from the boundary of any Category A, B or C ESA.
produced water	has the meaning in section 15A of the <i>Petroleum and Gas (Production and Safety) Act 2004</i> and means CSG water or associated water for a petroleum tenure.
protection zone	means the primary protection zone of any Category A, B or C ESA or the secondary protection zone of any Category A or B ESA.
regional ecosystem	has the meaning in the Methodology for Surveying and Mapping of Regional Ecosystems and Vegetation Communities in Queensland (Version 3.2 August 2012) and means a vegetation community in a bioregion that is consistently associated with a particular combination of geology, landform and soil. Regional ecosystems of Queensland were originally described in Sattler and Williams (1999). The Regional Ecosystem Description Database (Queensland Herbarium 2013) is maintained by Queensland Herbarium and contains the current descriptions of regional ecosystems.
rehabilitation or rehabilitated	means the process of reshaping and revegetating land to restore it to a stable landform and in accordance with acceptance criteria and, where relevant, includes remediation of contaminated land. For the purposes of pipeline rehabilitation, rehabilitation includes reinstatement, revegetation and restoration.
reinstate or reinstatement	for pipelines, means the process of bulk earth works and structural replacement of pre-existing conditions of a site (i.e. soil surface typography, watercourses, culverts, fences and gates and other landscape(d) features) and is detailed in the Australian Pipeline Industry Association (APIA) Code of Environmental Practice: Onshore Pipelines (2013).
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. For polycyclic aromatic hydrocarbons, the reporting limit

	must be based on super-ultra trace methods and, depending on the specific polycyclic aromatic hydrocarbon, will range between 0.005 ug/L–0.02 ug/L.
residual drilling material	means waste drilling materials including muds and cuttings or cement returns from well holes and which have been left behind after the drilling fluids are pumped out.
restoration	means the replacement of structural habitat complexity, ecosystem processes, services and function from a disturbed or degraded site to that of a pre-determined or analogue site. For the purposes of pipelines, restoration applies to final rehabilitation after pipeline decommissioning.
restricted stimulation fluids	has the meaning in section 206 of the <i>Environmental Protection Act 1994</i> and means fluids used for the purpose of stimulation, including fracturing, that contain the following chemicals in more than the maximum amount prescribed under a regulation— (a) petroleum hydrocarbons containing benzene, ethylbenzene, toluene or xylene (b) chemicals that produce, or are likely to produce, benzene, ethylbenzene, toluene or xylene as the chemical breaks down in the environment.
revegetation or revegetating or revegetate	means to actively re-establish vegetation through seeding or planting techniques in accordance with site specific management plans.
secondary protection zone	in relation to a Category A or Category B ESA means an area within 100 metres from the boundary of the 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) • a library, childcare centre, kindergarten, school, university or other educational institution • a medical centre, surgery or hospital • a protected area • 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 • 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 • for noise, a place defined as a sensitive receptor for the purposes of the <i>Environmental Protection (Noise) Policy 2008</i>.
sensitive receptor	is defined in Schedule 2 of the <i>Environmental Protection (Noise) Policy 2008</i> , and means an area or place where noise is measured.
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 or significant disturbance or significant disturbance to land or areas	has the meaning in Schedule 12, section 4 of the <i>Environmental Protection Regulation 2008</i> . Land is significantly disturbed if— (a) it is contaminated land; or (b) it has been disturbed and human intervention is needed to rehabilitate it— (i) to a condition required under the relevant environmental authority; or (ii) if the environmental authority does not require the land to be rehabilitated to a particular condition—to the condition it was in immediately before the disturbance.

species richness	means the number of different species in a given area.
stable	has the meaning in Schedule 5 of the <i>Environmental Protection Regulation 2008</i> and, for a site, means the rehabilitation and restoration of the site is enduring or permanent so that the site is unlikely to collapse, erode or subside.
stimulation	means a technique used to increase the permeability of natural underground reservoir that is undertaken above the formation pressure and involves the addition of chemicals. It includes hydraulic fracturing / hydrofracturing, fracture acidizing and the use of proppant treatments. Explanatory note: This definition is restricted from that in the <i>Petroleum and Gas (Production and Safety) Act 2004</i> in order to only capture the types of stimulation activities that pose a risk to environmental values of water quality in aquifers.
stimulation fluid	means the fluid injected underground to increase permeability. For clarity, the term stimulation fluid only applies to fluid injected down well post-perforation.
stimulation impact zone	means a 100m maximum radial distance from the stimulation target location within a producing formation.
structure	means a dam or levee.
subterranean cave GDE	- means an area identified as a subterranean cave in the mapping produced by the Queensland Government and identified in the Queensland Government Information System, as amended from time to time; and - means a cave ecosystem which requires access to groundwater on a permanent or intermittent basis to meet all or some of their water requirements so as to maintain its communities of plants and animals, ecological processes and ecosystem services. Subterranean cave GDEs are caves dependent on the subterranean presence of groundwater. Subterranean cave GDEs have some degree of groundwater connectivity and are indicated by either high moisture levels or the presence of stygofauna, or both, referred to in the Queensland Government WetlandsInfo mapping program, as amended from time to time. <i>Note: the Subterranean GDE (caves) dataset can be displayed through the Queensland Government WetlandInfo mapping program.</i> <i>Note: the Subterranean GDE (caves) dataset can be obtained from the Queensland Government Information System.</i>
suitably qualified person	means a person who has professional qualifications, training or skills or experience relevant to the nominated subject matters and can give authoritative assessment, advice and analysis about performance relevant to the subject matters using 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 <i>Professional Engineers Act 2002</i>, 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. <i>Note: 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.</i>
suitably qualified third party	means a person who:

	(a) has qualifications and experience relevant to performing the function including but not limited to: i. a bachelor's degree in science or engineering; and ii. 3 years' experience in undertaking soil contamination assessments; and (b) is a member of at least one organisation prescribed in Schedule 8 of the <i>Environmental Protection Regulation 2008</i>; and (c) not be an employee of, nor have a financial interest or any involvement which would lead to a conflict of interest with the holder(s) of the environmental authority.
sump	means a pit in which waste residual drilling material or drilling fluids are stored only for the duration of drilling activities.
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.
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 300mm in depth from the natural surface.
total density of coarse woody material	means the total length of logs on the ground greater than or equal to 10cm diameter per hectare and number of logs on the ground greater than or equal to 10cm diameter per hectare.
transmissivity	means the rate of flow of water through a vertical strip of aquifer which is one unit wide and which extends the full saturated depth of the aquifer.
valid complaint	means all complaints unless considered by the administering authority to be frivolous, vexatious or based on mistaken belief.
void	means any constructed, open excavation in the ground.
waste and resource management hierarchy	has the meaning provided in section 9 of the <i>Waste Reduction and Recycling Act 2011</i> and is the following precepts, listed in the preferred order in which waste and resource management options should be considered— (a) AVOID unnecessary resource consumption (b) REDUCE waste generation and disposal (c) RE-USE waste resources without further manufacturing (d) RECYCLE waste resources to make the same or different products (e) RECOVER waste resources, including the recovery of energy (f) TREAT waste before disposal, including reducing the hazardous nature of waste (g) DISPOSE of waste only if there is no viable alternative.
waste and resource management principles	has the meaning provided in section 4(2)(b) of the <i>Waste Reduction and Recycling Act 2011</i> and means the: (a) polluter pays principle (b) user pays principle (c) proximity principle (d) product stewardship principle.
waste fluids	has the meaning in section 13 of the <i>Environmental Protection Act 1994</i> in conjunction with the common meaning of "fluid" which is "a substance which is capable of flowing and offers no permanent resistance to changes of shape". Accordingly, to be a waste fluid, the waste must be a substance which is capable of flowing and offers no permanent resistance to changes of shape.
watercourse	has the meaning in Schedule 4 of the <i>Environmental Protection Act 1994</i> and means:

Date Granted: 15 September 2016

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	1) a river, creek or stream in which water flows permanently or intermittently— (a) in a natural channel, whether artificially improved or not; or (b) in an artificial channel that has changed the course of the watercourse. 2) 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, 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.
well integrity	the ability of a well to contain the substances flowing through it.
wetland	for the purpose of this environmental authority, wetland means: • areas shown on the Map of referable wetlands which is a document approved by the chief executive on 4 November 2011 and published by the department, as amended from time to time by the chief executive under section 144D of the <i>Environmental Protection Regulation 2008</i>; and • areas defined under the Queensland Wetlands Program as 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, and possess 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. The term wetland includes riverine, lacustrine, estuarine, marine and palustrine wetlands; and it does not include a Great Artesian Basin Spring or a subterranean wetland that is a cave or aquifer.
wetland of high ecological significance	means a wetland that meets the definition of a wetland and that is shown as a wetland of 'high ecological significance' or wetland of 'high ecological value' on the Map of referable wetlands.
wetland of other environmental value	means a wetland that meets the definition of a wetland and that is shown as a wetland of 'general environmental significance' or wetland of 'other environmental value' on the Map of referable wetlands.

END OF ENVIRONMENTAL AUTHORITY

